RECEIVED
JUN 19 1946
O. S. U. LIBRARY

I. C. 7349

MAY 1946

UNITED STATES
DEPARTMENT OF THE INTERIOR
J. A. KRUG, SECRETARY

BUREAU OF MINES
R. R. SAYERS, DIRECTOR

INFORMATION CIRCULAR

GEOPHYSICAL ABSTRACTS 122

JULY - SEPTEMBER 1945

COMPILED BY

V. SKITSKY

Generated on 2024-09-19 16:04 GMT / https://hdl.handle.net/2027/osu.32435030643860
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google

Digitized by Google

Original from
THE OHIO STATE UNIVERSITY

I. C. 7349,
May 1946.

INFORMATION CIRCULAR

UNITED STATES DEPARTMENT OF THE INTERIOR - BUREAU OF MINES

GEOPHYSICAL ABSTRACTS 122
July - September 1945[1]

Compiled by V. Skitsky[2]

CONTENTS

		Page
1.	Gravitational methods	2
2.	Magnetic methods	6
3.	Seismic methods	12
4.	Electrical methods	21
5.	Radioactive methods	24
6.	Geothermal methods	27
7.	Geochemical methods	29
8.	Unclassified methods and topics related to geophysics	29
9.	New publications	35
10.	Patents	36
	Index	46

FOREWORD

Geophysical Abstracts 1 - 86 were issued in mimeographed form by the Bureau of Mines; Abstracts 87 - 111 were published in bulletins of the Geological Survey; Abstracts 112 - 121 were issued in mimeographed form by the Bureau of Mines as Information Circulars 7256, 7257, 7267, 7373, 7385, 7292, 7303, 7310, 7324, and 7338.

1/ The Bureau of Mines will welcome reprinting of this paper, provided the following footnote acknowledgment is used: "Reprinted from Bureau of Mines Information Circular 7349."

2/ Physical science analytical editor, Bureau of Mines, U. S. Department of the Interior.

Generated on 2024-09-19 16:06 GMT / https://hdl.handle.net/2027/osu.32435030643860
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

1. GRAVITATIONAL METHODS

8053. Andreev, B. A., Zakashanskii, M. S., Samsonov, N. N., and Fotiadi, E. E. A Textbook of Gravitational Surveying (in Russian). Gosgeolizdat, Moscow-Leningrad, 1941, 432 pp.

This textbook was written at the suggestion of the faculty of geophysical exploration of the Leningrad Mining Institute. It contains two parts: (1) Theory and technique, and (2) Applications to geology and exploration. The features bringing the text up-to-date include: (a) Description of the principal modern gravimeters; particular attention to the method of simultaneous oscillation of 4 pendulums; (b) discussion of the aperiodic oscillation of torsion balances; outline of the construction of variometers Z-20 and Z-40; (c) material for aid in interpretation, such as reference-charts, formulas with their derivation, atlas of theoretical curves, and examples of interpretative calculations; (d) considerations in the planning of surveys and the densities of various rocks; and (e) detailed analysis of significant examples. The text is provided with a bibliography. - V. S.

8054. Billot, Henri. Influence exercée par un champ magnétique longitudinal sur les oscillations de torsion d'un fil de nickel (The Influence Exerted by a Longitudinal Magnetic Field Upon the Torsion Oscillations of a Thread of Nickel). Compt. rend. Acad. Sci., Paris, vol. 218, No. 11, 1944, pp. 453-454.

A study was made of the influence exerted by a longitudinal magnetic field upon the oscillation and damping of a torsion balance equipped with a ferromagnetic torsion thread. (1) The oscillator comprised a nickel thread 35 cm. long, placed vertically along the axis of a solenoid 50 cm. long and 5.5 cm. in diameter. This thread supported a carriage 1 kg. in weight. The initial oscillations were set at 30°. In such an instrument the damping of oscillations varies with the intensity of the induction field.. (2) It was discovered that, when the induction intensity H is increased, the logarithmic decrement, δ, at first increases, passes a maximum at H = 80 gauss, and then decreases. On the other hand, when the induction intensity H is decreased, the logarithmic decrement undergoes a variation which is not the reverse of the first variation. In the absence of a magnetic field the period shows a very slight variation. The coefficient of interior friction for nickel is, apparently, magnetic in nature. (3) These findings lead to the conclusion that the magnetic field influences the torsion oscillations of a nickel thread by causing a variation in its inner friction. - V. S.

8055. Boletin de Informaciones Petroleras. Y.P.F. inicia estudios de exploración en la provincia de Buenos Aires (Y.P.F. Initiates Exploratory Studies in the Province of Buenos Aires). Direccion General de Y.P.F., Buenos Aires, vol. 21, No. 241, 1944, p. 75.

Three geophysical parties have been sent by the Argentine Administration of Government Oil Fields (Y.P.F.) to the Buenos Aires province, in accordance

Generated on 2024-09-19 16:51 GMT / https://hdl.handle.net/2027/osu.32435030643860
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

with arrangements made in December 1943: (1) One party with torsion balances, to the Rio Salado and Ensenada de Samborombón; (2) one party with a gravimeter, to the south and east of Bahía Blanca; and (3) one party with seismic refraction equipment, to the west of Bahía Blanca. The exploration assignments are briefly indicated. - V. S.

8056. Bridgman, P. W. Polymorphic Transitions and Geological Phenomena. Am. Jour. Sci., New Haven, Conn., vol. 243-A (Daly volume), 1945, pp. 90-97.

Polymorphic transitions have been observed by the author in the laboratory under a wide range of conditions. In the last few years the pressure used for the observations was extended to 50,000 kg./cm.^{2} and higher. A statistical examination of the results is now undertaken, and findings for different types of transition are described. The conclusion is reached that transitions, even those having a volume change too small to be important in other connections, may play an important role in isostatic adjustments. -V.S.

8057. Closs, H. Gravimetrische Überlegungen zum geologischen Profil der Thermalbohrung von Heidelberg (Gravimetric Considerations Regarding the Geological Profile of the Hot-Spring Borehole in Heidelberg). Oel und Kohle, Berlin, vol. 39, Nos. 43/44, 1943, pp. 942-951.

The hot-spring borehole in Heidelberg, Germany, is of interest to geophysicists because this locality has very low gravity values. The region had been previously investigated by means of gravimetric and torsion-balance surveys. The author utilizes the torsion-balance profiles and a geological profile. He also obtains volumetric-weight profiles by sampling cores in two adjacent oil wells; the problems of such profiling are discussed. The combined material serves for calculating the gradient profiles of the hot-spring area. The results are embodied in cross-sectional diagrams. Further geophysical and geological information is taken into consideration for the interpretation, such as regional gravity trends, the local characteristics of the Tertiary, etc. The findings are discussed in their geological and oil-bearing aspects. - V. S.

8058. Dubiago, A. D. Regarding the Integration of Gradients of the Force of Gravity (in Russian). Bull. Acad. Sci. U.R.S.S. (Izvestiia), Moscow, Sér. Géogr. Géophys., vol. 8, No. 1, 1944, pp. 25-34.

Gravity maps are prepared on the basis of gravimeter or variometer measurements. The author deals with the treatment of variometer data preliminary to map making. He indicates briefly the limitations of variometer observations (see also Geophys. Abs. 121, No. 7935). Then he examines critically the mathematical theory and methods of integration of variometer gradients. The reductions for the normal field of the earth and for the local variations of topographic relief are considered. In the light of these discussions, an analysis is made of the effects of the current standard methods of integration upon the gravity results. A formula is deduced for the error involved

Generated on 2024-09-19 16:50 GMT / https://hdl.handle.net/2027/osu.32435030643860
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

in ordinary linear integration of gradients in "free air". The possibilities of nonlinear integration of gradients are briefly considered. - V. S.

8059. Gunn, Ross. The Mechanics of the Lithosphere and Its Relation to Gravity Anomalies and Fracture. Nat. Research Council, Am. Geophys. Union, Trans. 1944, pt. IV, Washington, D. C., 1945, pp. 633-634.

The mechanics of the lithosphere are discussed in relation to gravity anomalies. Three fundamental assumptions of a rigid, plastic, and elastic lithosphere are distinguished. Consideration is then limited to a typical section of the lithosphere of unit width extending at right angles to the axis of an assumed linear earth feature. Equations are presented for the deformation of an equivalent unbroken beam supported by a weak magma and for the deflection of the lithosphere at any selected point. By solving these equations it is possible to determine the figure of the deformed lithosphere. With a knowledge of this figure and the relations expressed by the last equation, the principal term of the gravity anomaly Δg can be evaluated as a function of its position. It thus becomes possible to forecast finite gravity anomalies in deformed regions of the earth's crust. It is also possible to compute the stress anywhere in the lithosphere, if the load applied and the lithospheric constant are known. - V. S.

8060. Jeffreys, Harold. Types of Isostatic Adjustment. Am. Jour. Sci., New Haven, Conn., vol. 243-A (Daly volume), 1945, pp. 352-359.

In view of the complexity of the force fields controlling isostatic adjustment, it is necessary to attack the problem by assuming relatively simple conditions which can only in part match those of nature. This paper gives the calculated results to be derived from each of two assumptions: That a surface load with the form of a long strip laid on the earth's surface causes lateral flow (a) in a deep viscous fluid, and (b) in a thin layer of viscous fluid which lies close to the original surface, that is, a layer resting between strong upper and lower layers. The results are indicated by figures and by the author's summary: "For flow in a deep layer the subsidence within the region will be greater at the center, and the strata for some distance outside it will be bent downwards. For flow in a thin, intermediate layer the subsidence within the region will be greatest just inside it and the strata outside it will be pushed upward to make room for the material expelled. In regions subject to great erosion the first hypothesis would give an anticlinal structure and the second a synclinal one; for regions of heavy deposition these relations would be reversed." The author concludes that "the evidence of gravity is not particularly favorable to either hypothesis." Doubts are expressed that "flow at small stresses (affecting rocks) can accumulate over long periods." - Publisher's abs.

8061. Kogbetliantz, E. G. Quantitative Interpretation of Maps of Magnetic and Gravitational Anomalies by Mathematical Methods. Quart. Appl. Mathematics, Providence, R. I., vol. 3, No. 1, 1945, pp. 55-75.

Generated on 2024-09-19 16:53 GMT / https://hdl.handle.net/2027/osu.32435030643860
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

A new mathematical method of interpreting magnetic and gravitational maps is offered. It is based on the theory of potential, as the usual methods. But it does not make use of individual values, such as maxima, minima, zeros, inflection points, etc. These values are untrustworthy for anomalies of medium and small size which now become increasingly important in exploration. Instead, the new method utilizes exclusively the average values and, in particular, moment functions and moments of the observed quantity and of its square. The exposition of the method deals mathematically with the center of gravity and first moments, the interpretation of the map of an anticline with the aid of moments, and the interpretation of a centered anomaly created by a salt dome. The method was applied by the author in France and Iran with good results. - V. S.

8062. Lambert, W. D. The International Gravity Formula. Am. Jour. Sci., New Haven, Conn., vol. 243-A (Daly volume), 1945, pp. 360-392.

The international gravity formula was adopted with a view to the future determination of the figure of the earth by Stoke's formula and a comparison on a common basis of the results from gravity observations with those from astronomical leveling.

The gravity formula is developed from the constants of the international spheroid of reference; then the gravity formula resulting from an assumption of a fluid spheroid of reference of mass equal to that of the international spheroid is developed and discussed. The conclusion that the departure from the results of the international formula would be slight is illustrated by numerical examples.

There is some discussion of the so-called Bruns term or effect and of the controversy occasioned by Hopfner's revival of Bruns' ideas. The Bruns effect was, in fact, considered by Stokes and is taken account of in Stoke's formula.

A longitude term is developed by means of spherical harmonics. It seems to be real, but there are too few data to permit an accurate determination of the coefficients. Various hypotheses advanced by prominent geodesists are stated and the implications to be drawn are discussed in some detail. - Author's abs.

8063. Lomaev, G. Z. The Augmentation Coefficient of the Inclination Gauge Equipped with Zöllner's Weight (in Russian). Akademiia Nauk S.S.S.R., Trudy Seismologicheskogo Instituta, Moscow, No. 106, 1941, pp. 17-20.

When a horizontal pendulum equipped with Zöllner's weight is used for measuring inclination, its augmentation coefficient tends to change, because the angle of the pendular axis to the vertical changes. There are two methods of determining the exact value of this coefficient: (1) An experimental method uses the period of free pendular oscillations devoid of damping. Here the coefficient is computed in terms of acceleration of gravity, length of the pendulum, constant π, and period of oscillation. The period must be determined experimentally by means of filming or otherwise, and it may not be sufficiently accurate. The computations are described. (2) A theoretical

Generated on 2024-09-19 16:49 GMT / https://hdl.handle.net/2027/osu.32435030643860
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

method uses mathematical analysis. The coefficient is here computed exclusively in terms of generalized values and may fail to account for local peculiarities of the site of measurement. The mathematical derivation is described. - V. S.

8064. Neumann, G. Regionale Drehwaagemessungen an der Golfküste von Texas (Regional Torsion-Balance Measurements on the Gulf Coast of Texas). Beitr. angew. Geophys., Leipzig, vol. 9, 1942, pp. 234-268.

During 1934-38 the area of the Gulf coast of Texas between Matagorda Bay and the Texas hinterlands has been surveyed with torsion balance. Some 4,800 stations were occupied. The gravity results are compared with those of previous measurement at some 2,000 stations. Interpretation draws on these and some other regional data. It is found that oil-bearing structures tend to form separate and distinct zones. Further, a gravity maximum between Matagorda and Galveston Bay is compared with gravity anomalies in Schleswig-Holstein, Germany. The conclusion is drawn that torsion balance is equally well suited to the different oil regions of the world. - V. S.

8065. South African Mining and Engineering Journal. The Search for Free State Gold. Johannesburg, vol. 55, pt. 2, No. 2704, 1944, pp. 329-331.

The discovery of Western Holdings Co.'s new potential gold fields in the Orange Free State was achieved mainly by the use of the Eötvös torsion balance. The number of torsion-balance stations completed was close to 20,000. Magnetic surveys also were made. This combined exploration indicated that the area was underlain by the Witwatersrand system and that it was gold bearing. The first borehole, reported in 1939, was sunk in the Odendaalscrust area and encountered promising values. - V. S.

2. MAGNETIC METHODS

8066. Althausen, O. N. The Determination of the Magnetic Field of the Earth for Various Geological Epochs (in Russian). Bull. Acad. Sci. U.R.S.S. (Izvestiia), Moscow, Sér. Géogr. Géophys., vol. 8, No. 6, 1944, pp. 385-392.

The magnitude and direction of the magnetic field of the earth change with time. The author offers a method for determining these changes for different geological epochs by measuring the magnetic remanence of rocks. As an example, he describes his investigation in the area of the Teisk magnetite deposit. Measurements were made of thermoremanence and of other magnetic properties in magnetite samples subjected to cooling through the Curie point under the influence of magnetic fields of different intensity. A relationship was sought between the magnitude of remanence and the intensity of the field. The preparation of samples and the technique of measurement are described. The methodological requirements as to the selection of rocks for measurement are discussed in the light of the nature of remanent magnetism.

Generated on 2024-09-19 16:06 GMT / https://hdl.handle.net/2027/osu.32435030643860
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

The results obtained have shown that, with proper samples, remanence changes provide a suitable basis for determining the intensity of the magnetic field at the time of the cooling of rocks. - V. S.

8067. Athanasiu, G. Nouvelles mesures de magnétisme terrestre en Transylvanie (New Measurements of Terrestrial Magnetism in Transylvania). Bull. Fac. Sti. Cernauti, vol. 12, 1939, pp. 129-145.

In 1936-38 the author made absolute measurements of terrestrial magnetic declination and horizontal intensity in Transylvania, in the region which R. Eötvös explored in 1912-13. 33 stations were covered. The instruments for measuring horizontal intensity had been subjected to preparatory tests which are described. Time corrections were introduced on the basis of observations made at the magnetic observatory at Ogyalla, Hungary. The results are presented and discussed. They confirm the pronounced anomaly discovered and studied by Eötvös. - V. S.

8068. Blum, V. J. A Magnetic Survey of the Canon City Area. Nat. Research Council, Am. Geophys. Union, Trans. 1944, pt. IV, Washington, D. C., 1945, pp. 556-558.

A magnetic survey was made in the area of Canon City, Colo. It aimed at determining magnetic distribution for the well-known local structures and diverse rock types. The Schmidt (Askania) vertical field balance was used; the number of magnetic stations per square mile averaged 3.4. The principal results are embodied in a contour map showing the intensity distribution of the vertical component in relation to both subsurface and terrain features: (1) A long, narrow "low" extends along the northern base of the Wet Mountains; a vertical fault is found toward the west end of this low. (2) Magnetic "highs" in the northwest correlate with the amply exposed pegmatitic dikes. (3) The difference in readings between the crest and the base of a mountain near Canon City is over 3,000 gammas; the rate of change in magnetic intensity increases with elevation. Still other features of the map are described. The conclusion is drawn that, in correlating magnetic anomalies, the surface tertain must be considered to be as much of a factor in the earth's magnetic field as the subsurface structures and lithology. - V. S.

8069. Digiesi, Domenico. La carta magnetica d'Italia della componente orizzontale al 1940.0 edita recentemente dall'Istituto geografica militare (The Magnetic Map of Italy for the Horizontal Component Observed for epoch 1940.0, Edited Recently by the Military Geographical Institute). Geofis. pura appl., Messina, vol. 4, 1942, pp. 67-81.

The Military Geographical Institute, Italy, has recently published a magnetic map of Italy for the horizontal component of the terrestrial field, showing isodynamic lines for the epoch 1940.0. This map is reproduced on a reduced scale 1 : 4,000,000, and the method of practical determination of horizontal components is discussed. An example of observations employing the values obtained at the basic Italian stations is presented. - V. S.

Generated on 2024-09-19 16:57 GMT / https://hdl.handle.net/2027/osu.32435030643860
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

8070. Fleming, J. A. Researches in Terrestrial Magnetism and Electricity at Department of Terrestrial Magnetism, Carnegie Institution of Washington, During April, 1943, to May, 1944. Nat. Research Council, Am. Geophys. Union, Trans. 1944, pt. IV, Washington, D. C., 1945, pp. 584-588.

Notwithstanding exacting war work, many organizations of the Department have continued, at least in part, their ordinary observations on land, so that the continuity of these data was not totally interrupted. But observations at sea were precluded by naval operations, and isomagnetic charts could not be maintained. Some compensations were gained from investigations of war problems which yielded many items of scientific value. The reviewed activities of the Department are grouped under the following headings: (1) Geomagnetic investigations, (2) geoelectric investigations, (3) observatory and field work, and (4) publications. - V. S.

8071. Gassmann, Fritz. Magnetische Messungen an alpinen Erslagerstätten (Magnetic Measurements at Alpine Ore Deposits). Verh. Schweiz. naturforsch. Ges., Geneva, No. 100; 1941.

The iron-ore deposits of Mont Chemin near Martigny, Switzerland, have been surveyed magnetically in 1936-38. Measurements were made of vertical and horizontal intensity. Moreover, magnetic susceptibility and the direction and magnitude of remanence were determined for uniform ore samples by means of a variometer. The findings of the survey have been subsequently confirmed in the course of mining. The confirmation of the location of the ore lenses was more satisfactory than that of the volume of the lenses. It is proposed to apply the method of magnetic susceptibility and remanence determinations in other surveys. - V. S.

8072. Harrison, E. P., and Smith, E. H. A New Method of Measuring the Inclination of the Earth's Magnetic Field. Pro. Phys. Soc., London, vol. 56, pt. 1, No. 313, 1944, pp. 31-47.

The instrument is based on the increase in impedance, due to the skin effect, caused by a decrease in axial component of magnetic field in a wire of high-permeability nickel-iron when carrying alternating current. Four straight wires of similar characteristics are arranged accurately in a square, and form the four arms of an A.C. bridge. If the plan of the assembly lies in the magnetic meridian plane and is then rotated about a horizontal axis it is evident that when the total field vector lies in one of the diagonals of the square the bridge automatically balances and the angle between the diagonal and the horizontal plane is the angle of dip. Such an "all-magnetic" bridge needs no ancillary balancing adjusters. In the instrument the four wires are mounted as a square assembly in a disk, which is itself mounted in a ring within which it can rotate about an axis lying in one of the diagonals of the square. The ring is supported in a base block in such a manner that by means of a worm and micrometer head the whole ring (carrying the disk) can be rotated about an axis through its centre, perpendicular to the plane of the ring. The

Generated on 2024-09-19 16:07 GMT / https://hdl.handle.net/2027/osu.32435030643860
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

instrument, owing to its inherent geometrical simplicity, eliminates errors due to: (a) want of perfect match of the wires; (b) inaccuracy of geometric mounting of the wires; and (c) the vertical axis not being normal to the base plane. The value of the dip is independent of the adjustment of the electrical unit, provided this does not occur between the times of the direct and reversed readings necessary to a determination of the dip. - Authors' abstract.

8073. Howe, H. H. Analysis of Magnetometer-Deflections (Abs.) Nat. Research Council, Am. Geophys. Union, Trans. 1944, pt. IV, Washington, D. C., 1945, pp. 541-543.

An analyses is made of the relations existing between different deflections of a magnetometer. Knowledge of these relations makes it possible to detect blunders and to estimate the quality of observations. The types of deflections considered are: (1) Deflections at one distance; (2) two distances; (3) three or more distances; (4) one distance, at two different times; (5) two distances, at two different times; and (6) two distances erect and two distances inverted. Other cases will be considered later. For the purpose of discussion, any play in the stops on the deflection bar is assumed to be always taken up by pushing equally hard in a specified direction. Thus, the amount by which the magnetic center of the magnet is displaced by reversal of the magnet is the same, irrespective of which stop is used. As regards the accuracy of observations, it appears that a constancy within about 2' may be expected for a quantity that involves the sum or difference of eight circle readings. - V. S.

8074. Johnston, H. F. American Magnetic Character-Figure, C_A, Three-Hour-Range Indices, K, and Mean K-Indices, K_A, for January to March, 1945. Terrestrial Magnetism and Atmospheric Electricity, Baltimore, Md., vol. 50, No. 2, 1945, pp. 131-134.

Tables are given with explanatory text. - V. S.

8075. Kalashnikov, A. G. Magnetic Properties of Sedimentary Rocks (in Russian). Bull. Acad. Sci. U.R.S.S. (Izvestiia), Moscow, Sér. Géogr. Géophys., No. 3, 1941, pp. 317-343.

The magnetic properties of sedimentary rocks were investigated by the method of the torsion balance of Faraday-Curie. A development of this method by the author made it possible to produce a cyclic magnetization of rocks. As a result, variation of magnetic susceptibility in dependence on the intensity of the field was established for all rocks investigated relating to the Carbon and the superior and median Devonian periods. During the magnetization of a number of rocks with very weak magnetic properties the phenomenon of hysteresis was observed. The findings obtained for a group of sedimentary rocks are used for classifying rocks into fundamental magnetic types. Suggestions are advanced regarding a utilization of the magnetic properties of sedimentary rocks for the solution of geological problems. - Author's abs., translated by V. S.

Generated on 2024-09-19 16:05 GMT / https://hdl.handle.net/2027/osu.32435030643860
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

I.C. 7349.

8076. Knapp, D. G. Curiosities of Magnetographs. Nat Research Council, Am. Geophys. Union, Trans. 1944, pt. IV, Washington, D. C., 1945, pp. 537-540.

Innovations in magnetograph recording have had curious effects on the resulting records. Examples of such innovations in variometer operations are described with regard to instruments, effects, and interpretation. They deal with the use of a variable-width vertical slit in front of a horizontal filament, elimination of ghost traces by means of circular mirrors, a reverse spot produced by two mirrors for recording the reduced values of H during magnetic storms, etc. The variometers and recorder of the Eschenhagen magnetograph are used as illustrations. - V. S.

Zagretliantz, E. G. Quantitative Interpretation of Maps of Magnetic and Gravitational Anomalies by Mathematical Methods. Quart. Appl. Mathematics, Providence, R. I., vol. 3, No. 1, 1945, pp. 55-75. (See abs. 6061 in this issue.)

8077. Lee, F. W., Swartz, J. H., and Hemberger, S. J. Magnetic Survey of the Florida Peninsula. Bureau of Mines Rept. of Investigations 3810, May 1945, 49 pp.

This investigation was undertaken in 1939 for the purpose of securing the necessary information relating to the field techniques and accuracy that would be needed for magnetically surveying Statewide areas. The Florida peninsula was chosen for such a study for two reasons: First, because it is geologically ideal for such an investigation, since it comprises a series of unconsolidated, flat-lying Tertiary and Cretaceous sediments of low magnetic susceptibility covering a complex and much-folded crystalline basement composed of rocks carrying strongly paramagnetic materials; second, because information concerning the structural trends of the crystalline basement would be of great interest and importance in the study of Appalachian oregeny and the relationship of the Florida peninsula to both the Appalachian and Antillean tectonic systems. The results of this magnetic survey have clearly demonstrated that the magnetic anomalies reflect variations in the crystalline basement. To the degree which the structures of the crystalline basement control the structures of the overlying sediments these results are useful for oil exploration. - Authors' abs.

8078. Mikov, D. S. On a Special Nomogram for the Interpretation of Magnetic Anomalies (in Russian). Inform. Sbornik Zemn. Magnet. Elektrich., Leningrad-Moscow, No. 5, pt. 2, 1940, pp. 10-13.

The author proposes a special nomogram for the interpretation of magnetic anomalies arising from uniformly magnetized horizontal cylindrical bodies of any cross section and explains the use of this nomogram. - H. D. Harradon, Terrestrial Magnetism and Atmospheric Electricity, vol. 50, No. 2, 1945, p. 167.

Generated on 2024-09-19 16:54 GMT / https://hdl.handle.net/2027/osu.32435030643860
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

8079. Ogg, A., Gotsman, B., and Wijk, A. M. van. The Determination of the Horizontal Component of the Earth's Magnetic Force at the Magnetic Observatory, Hermanus, Union of South Africa. Trans. Roy. Soc. South Africa, Cape Town, vol. 30, pt. 2, 1944, pp. 121-134

The horizontal intensity (H) of the geomagnetic field was measured by magnetometers of different types at the Hermanus observatory. A comparative study is presented of the results of these observations, with a tabulation of data. The magnetometers used were: (1) Inductor magnetometer of the Carnegie Institution, Washington; (2) Schmidt standard theodolite magnetometer, Askania; (3) Helmholtz-Gaugain portable coil magnetometer, Cambridge; and (4) La Cour quartz horizontal-force magnetometer. The paper discusses the instruments, deflection and oscillation experiments, methods of observation, corrections for temperature and for variations of H, etc.; the underlying mathematics are included. The mathematical theory of the Schmidt magnetometer, which is not generally known, is presented, with a simplified method of using the instrument. - V. S.

8080. Ogurskii, A. F. Investigation of the Influence of Electrified Railways on the Earth's Magnetic Field (in Russian). Inform. Sbornik Zemn. Magnet. Elektrich., Leningrad-Moscow, No. 5, pt. 2, 1940, pp. 55-59.

By registering the magnetic variations and the earth-currents at seven different points at various distances from an electrified railway near Leningrad, it was found that its influence is noticeable at a distance of 20-30 kilometers. - H. D. Harradon, Terrestrial Magnetism and Atmospheric Electricity, vol. 50, No. 2, 1945, p. 167.

South African Mining and Engineering Journal. The Search for Free State Gold. Johannesburg, vol. 55, pt. 2, No. 2704, 1944, pp. 329-331 (see abs. 8065 in this issue).

8081. Swainson, O. W. Magnetic Work of the United States Coast and Geodetic Survey from April, 1943, through March, 1944. Nat. Research Council, Am. Geophys. Union, Trans. 1944, pt. IV, Washington, D. C., 1945, pp. 589-591.

During the year 1943-44 the Section of Geomagnetism, United States Coast and Geodetic Survey, continued to devote all its facilities to military services. Among these, magnetic information for charts was foremost. The work of the section is reviewed under the following headings: (1) Magnetic surveys; (2) work in the Office; (3) instrumental program; and (4) observatories. - V. S.

8082. Tamm, I. E. (Electric) Currents in the Ionosphere Producing Variations in the Earth's Magnetic Field (in Russian). Bull. Acad. Sci. U.R.S.S. (Izvestiia), Moscow, Sér. Phys., vol. 8, No. 2, 1944, pp. 30-41.

Generated on 2024-09-19 16:07 GMT / https://hdl.handle.net/2027/osu.32435030643860
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

Three theories proposed to explain the mechanism of the origin of ionospheric currents causing daily variations of the earth's magnetic field are discussed. The theories of Gunn and Chapman are shown to be incorrect. Chapman's theory is then modified by taking into account the fact that the distribution of ions in the ionosphere is not an equilibriated one. Preliminary calculations indicate that in this new form the theory can explain the forces as well as the phase of ionospheric currents. - F. H. R., Chem. Abs., vol. 39, No. 5, 1945, p. 861.

8083. Vacquier, Victor. The Gulf Absolute Magnetometer. Terrestrial Magnetism and Atmospheric Electricity, Baltimore, Md., vol. 50, No. 2, 1945, pp. 91-104.

In response to the need for a more accurate method of measuring the vertical magnetic intensity in the field, voiced to me in 1938 by Capt. N. H. Heck, of the United States Coast and Geodetic Survey, the Gulf Research & Development Co. built an absolute magnetometer of new design for the determination of declination (D), vertical intensity (Z), and horizontal intensity (H). The declination is measured in the customary manner by means of a fiber-suspended magnet. The intensity-measurements are made by comparing the field of a Helmholtz coil with the component of the earth's field that is to be measured. H is obtained by the sine-galvanometer method. The zero-field detecting device for Z is a special vertical field-balance in which the polarity of the magnet can be reversed by discharging a condenser through magnetizing coils fastened to the case. The effect of residual mechanical unbalance is thus made to disappear from the average of two sets of observations taken with the magnet oppositely polarized. The Helmholtz coil-constant for the Z-magnet is determined by suspending the Z-magnet in the sine-galvanometer housing, and comparing the value of H so obtained with an observatory base-line.

From preliminary tests at Cheltenham in April, 1940, the declination-error was 1.'6. The precision of the intensity-measurements is limited entirely by the stability of electrical standards in the field. This is estimated to be between 0.01 and 0.02 per cent. Six standard cells, two standard resistors, and one Rubicon potentiometer comprise the electrical measuring equipment. The determination of Z on the basis of the Cheltenham base-line for H and the electrical equipment of the CIW sine-galvanometer No. 1 was 17 gammas greater than the Cheltenham base-line for Z. This discrepancy can be accounted for either by pier-differences or by a magnetic impurity in the construction of the Z-balance. The tests were interrupted by the war. Since little remains to be done to the instrument, it is hoped that it will be made ready for the postwar observational program at an early date. - Author's abs.

3. SEISMIC METHODS

8084. Beach, F. K. Shell Jumpingpound Well Discovers Major Field. Petrol. Eng., Dallas, Tex., vol. 16, No. 6, 1945, pp. 94-101.

The Shell Oil Co. of Canada has discovered an oil field in the Jumpingpound area west of Calgary, Alberta. The discovery is due partly to several seismic surveys made in the course of exploration. The local geology has offered considerable difficulties in interpretation. - V. S.

Generated on 2024-09-19 16:55 GMT / https://hdl.handle.net/2027/osu.32435030643860
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

8085. Beles, A. A. Le tremblement de terre du 10 novembre 1940 et les bâtiments (The Earthquake of November 10, 1940, and the Buildings). Compt. rend. Acad. Sci. Roum., Bucharest, vol. 5, 1941, pp. 270-287.

The earthquake of November 10, 1940, which destroyed so much property, has called attention to the problem of constructing buildings in Rumania that will be earthquake-proof. It was found that, among reinforced-concrete structures and buildings having a steel framework, those designed and constructed in conformity with the official German specifications withstood the shock well, whereas a number of other buildings, especially very tall ones, were seriously damaged. The greatest disaster was the total collapse of the Carlton block in Bucharest. The causes of this are sought, and various peculiarities in its design are pointed out. Masonry houses have suffered, on the whole, more than did buildings of other construction. - I. Lehmann, Zentralbl. Geophys., Meteorol., Geodas., Berlin, vol. 10, No. 4, 1943, p. 187

Boletin de Informaciones Petroleras. Y.P.F. inicia estudios de exploración en la provincia de Buenos Aires (Y.P.F. Initiates Exploratory Studies in the Province of Buenos Aires). Direccion General de Y.P.F., Buenos Aires, vol. 21, No. 241, 1944, p. 75. (see abs. 8055 in this issue).

8086. Bonchkovskii, V. F. One of the methods of Determining the Velocity of Transverse Surface Waves for Plotting Dispersion Curves (in Russian). Bull. Acad. Sci. U.R.S.S. (Izvestiia), Moscow, Sér. Géogr. Géophys., No. 3, 1941, pp. 345-350.

The paper describes a graphic method for calculating the velocities of propagation of seismic transverse surface waves. The application of this method to the study of seismograms of earthquakes has yielded dispersion curves showing the difference in the thickness of the earth's crust under plains and mountains. - Author's abs., translated by V. S.

8087. California Oil World. Oil Exploration Begins in the Paraguay Chaco. Los Angeles, Calif., vol. 38, No. 1, 1945, pp. 7-9.

The Union Oil Co. of California has made an agreement with the Government of Paraguay for exploring the oil resources of a large tract in the Chaco territory. No wells have been drilled so far in Chaco, and no rock outcrops have been found. Thus, it will be necessary to depend entirely on geophysical methods for gathering subsurface information. The Western Geophysical Co., engaged by Union Oil, has sent out a seismograph crew to the field. The plans of preliminary exploration and the conditions of work are briefly outlined. - V. S.

8088. Critikos, N. A. Caratteristiche dei sismogrammi di terremoti prossimi ad Atene, Grecia, e fenomeni relativi nella regione epicentral (Characteristics of Seismograms of Earthquakes Close to Athens, Greece, and Related Phenomena in the Epicentral Region). Geofis. pura appl., Messina, vol. 4, 1942, pp. 82-96.

Generated on 2024-09-19 16:08 GMT / https://hdl.handle.net/2027/osu.32435030643860
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

The author studied the question as to whether the first ground movement of an earthquake registers on the seismograms of a proximate station as a compression or a dilatation. The records accumulated since 1912 by the seismological station at Athens, Greece, served as material. The method consisted in first plotting the epicenters of earthquakes close to Athens on a map and then studying the distribution of compressions and dilatations with reference to epicentral positions. As a result, definite relationships were discovered; they are discussed. It is concluded that the first ground movement is registered at the Athens station as a push or a pull, according as the epicenter of the quake is located in a region sloping gradually upward or downward with reference to Athens. Cases of seismograms lacking P-waves were also investigated. They are explained by an abnormal depth of focus. - V. S.

8089. Dix, C. H. The Interpretation of Well Shot Data. Geophysics, Menasha, Wis., vol. 10, No. 2, 1945, pp. 160-170.

Five methods of shooting a well for the determination of vertical velocity, and the methods of reduction of the data, are discussed. Means are described for determining the existence of interference due to transmission of vibration down the cable which suspends the well geophone. - Author's abs.

8090. Gaby, P. F. A New Type of Seismic Cross-Section Wherein Accuracy of Representation Is Rendered Insensitive to Velocity Error. Geophysics, Menasha, Wis., vol. 10, No. 2, 1945, pp. 171-185.

A digest of this paper appeared in Oil and Gas Jour., Tulsa, Okla., vol. 42, No. 46, 1944, p. 105 (see Geophys. Abs. 117, No. 7406).

8091. Gamburtsev, G. A. Incomplete Systems of Hodographs of Refracted Waves (in Russian). Bull. Acad. Sci. U.R.S.S. (Izvestiia), Moscow, Sér. Géogr. Géophys., vol. 8, No. 2-3, 1944, pp. 72-86.

Some very simple "incomplete" systems of hodographs of refracted waves have a solution of the type: $U = U(v,q)$. Here "v" is an unknown parameter in the hodograph's equation which determines its multiple solubility. The other factor, "q," is a parameter the values of which can be assigned at will. Often it may be possible to determine the approximate value of v from physical or geological considerations. Then the largest and smallest values of U can be computed for each assigned q. The difference between the limits of U shows the error of interpretation and is a function of q. For many problems an optimal value of the parameter q brings the upper and lower limits of the variation of U closest together. In the present paper, q_{opt} is determined by a further condition: $U(\underline{v},q_{opt}) = U(\overline{v},q_{opt})$, where $(\underline{v},\overline{v})$ is the interval of the variation of v.

In the light of these considerations, two cases of incomplete systems of hodographs are considered: (1) Two-dimensional - deals with the interpretation of a rectilinear hodograph of refracted waves in which there is no inverse time curve and the real velocity in the lower medium is unknown; and (2) Three-dimensional - deals with the interpretation of a "traverse" hodograph in which there is no complementary longitudinal time curve. The author shows that in

Generated on 2024-09-19 16:07 GMT / https://hdl.handle.net/2027/osu.32435030643860
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

these cases the difference between the largest and the smallest values of q_{opt} may be so small that it is practically possible to regard the problems as susceptible of a single solution. - V. S.

8092. Gassmann, Fritz. Ein elektrischer Seismograph mit Fernregistrierung (An Electrical Seismograph with Registration at Distance). Verh. Schweiz. naturforsch. Ges., Geneva, 1941, pp. 100-101.

A new electrical seismograph is described for precise measurements of ground vibrations. In its construction, particular attention is paid to the elimination of friction, resonance-vibrations of parts of the apparatus, and extraneous effects on pendular oscillations. The difficulties of astatizing a vertical pendulum are overcome by combinations of supporting strings and levers. The apparatus has no lever-system for mechanical magnification. The oscillations of the pendulum are transmitted to a sliding oscillograph by means of a carrier-wave. - V. S.

8093. Gutenberg, Beno. Amplitudes of P, PP, and S and Magnitude of Shallow Earthquakes. Bull. Seismol. Soc. America, Berkeley, Calif., vol. 35, No. 2, 1945, pp. 57-69.

It is found that the absorption coefficient for longitudinal and transverse waves in the mantle of the earth, as well as for longitudinal waves through the core, is 0.00012 per kilometer. In the average shallow earthquake about equal amounts of energy go into longitudinal and transverse waves. The equation developed in the text, together with two of the tables given therein, permits the calculation of the magnitude of a shallow earthquake from the amplitudes of P, PP, or S. - Author's abs.

8094. Gutenberg, Beno. Variations in Physical Properties Within the Earth's Crustal Layers. Am. Jour. Sci., New Haven, Conn., vol. 243-A (Daly volume), 1945, pp. 285-312.

In two recent papers the author has investigated with as high an accuracy as practicable travel times and average wave velocities in the crustal layers in southern California. However, it is not possible to use the observed time data for conclusions as to the changes of the velocity within a given layer; the expected effects are of the same order of magnitude as the effects of local differences in structure (likewise investigated by the author). Zoeppritz was the first to point out that changes with distance in the amplitudes of the observed waves may give information of this kind. The method outlined by him is employed in the present paper to study the changes in the velocity of elastic waves, the bulk modulus, and the coefficient of rigidity with depth within the layers of the earth's crust. The results are compared with data found from laboratory experiments. The depth at which the melting point is reached is discussed. - Author's abs.

Generated on 2024-09-19 16:07 GMT / https://hdl.handle.net/2027/osu.32435030643860
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

8095. Haarstick, F. von. Das Korrelationsverfahren in der Reflexionsseismik (The Correlation Method in Reflection Seismology). Oel und Kohle, Berlin, vol. 40, Nos. 13/14, 1944, pp. 197-202.

In reflection seismology, the correlation method is generally more satisfactory for underground exploration than the plotting of individual reflections because correlations can be studied on the seismograms themselves. This advantage is discussed in the example of a survey of a salt dome in Ostfreisland made in 1942 by means of a reflection apparatus. A primary condition of successful correlation, particularly with complex tectonics, is to distribute field measurements with a view to obtaining a coherent sequence. For this purpose, L. L. Nettleton's center-point control is sometimes used; its difficulties are indicated. In the survey under consideration, G. H. Westby's geophone arrangement obviating these difficulties was employed. The resulting seismograms are presented next to one another in the manner required for correlation; so ordered, they reveal the general pattern of geological configuration. This material is analyzed qualitatively and quantitatively. The findings are harmonized in a diagram of local tectonics. - V. S.

8096. Hodgson, E. A. Rockburst Research at Lake Shore Mines. Canadian Min. Met. Bull., Montreal, No. 397, 1945, pp. 267-269.

Rockburst predictions based on microseismims have been studied at the Lake Shore Mines, Canada, since May 1942. In 1943 favorable results were reported (Geophys. Abs. 120, No. 7851), but since that time research in another part of the mine has not been equally successful. A full year's observations have failed to predict the many bursts that occurred in the very block of ground serviced by the instruments. Thus, the microseismic method cannot as yet be relied upon to give dependable warnings of rockburst danger. However, extenuating circumstances have been discovered. Some bursts are caused by rock slips rather than by rock pressure; they result from comparatively smaller stress and may elude detection. Subaudible snaps can be heard at much greater distances than they can be properly recorded; they may fail to register. These and other observations, as well as the encouraging experiments of L. A. Obert (Geophys. Abs. 121, No. 7978), lead the author to conclude that studies of microseismims should be continued and new methods of application sought. - V. S.

8097. Horton, C. W. The Analysis of Oblique Reflection Data. Geophysics, Manasha, Wis., vol. 10, No. 2, 1945, pp. 186-206.

In regions where the reflecting layers have large dips it is difficult to interpret reflection data if the shot-point and the instrument-spread do not coincide. In this paper rigorous methods of locating the reflection-point and of determining the magnitude and direction of the dip are given. Two approximate solutions are discussed in detail, and by means of theoretical considerations and numerical examples it is shown that the errors introduced by the approximations are adequately small. - Author's abs.

Generated on 2024-09-19 16:57 GMT / https://hdl.handle.net/2027/osu.32435030643860
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

8098. Jones, W. M. Effects of Focal Depth on Epicentral Determinations from S-P Intervals in the South Pacific Region. New Zealand Jour. Sci. Tech., Wellington, vol. 26, No. 4B, 1945, pp. 219-226.

For earthquakes in the more important seismic portion of the South Pacific, the effects of focal depth on the location of epicenters of S-P intervals at Wellington, Brisbane, and Suva are investigated, and the displacements of epicenters due to incorrect assumptions of focal depth are illustrated. Methods are considered for obtaining directly good approximations to an epicenter without any assumption of focal depth. - Author's abs.

8099. Lees, G. M., and Taitt, A. H. "Anglo-Iranian" Oil Search in Great Britain Reviewed. Petrol. Times, London, vol. 49, No. 1,238, 1945, pp. 5-9, 31-33.

A review is given of a paper "Geological Results of the Search for Oilfields in Great Britain", read by the authors to the Geological Society in London. The D'Arcy Exploration Co. started its British exploratory program in 1936. Several wells were drilled, and geophysical surveying was done in Nottinghamshire and Lincolnshire. A subsequent analysis of colliery data pointed to an anticlinal axis at Eakring, Notts. This axis was confirmed by seismic reflection and refraction surveys. As a result, a well was drilled at Eakring, and oil was struck on June 19, 1939. Further exploration was confined, due to war, to the immediate vicinity. Oil accumulations were found at Kelham Hills, Duke's Woods, and Caunton. Eventually, siesmic surveys were extended to the northeast, east, and south. The geological results of various borings are described, and possible oil-bearing areas are tentatively indicated. Sketch maps illustrate the text. - V. S.

8100. Lynch, W. A., and Dillon, Vincent. Characteristics of Alaskan Earthquake-Records at Distances of 40° to 70° (Abs.). Nat. Research Council, Am. Geophys. Union, Trans. 1944, pt. II, Washington, D. C., 1944, p. 282.

The records of Alaskan earthquakes are often confusing and difficult to interpret. The authors have studied some of these records with a view to detecting definite trends that would reveal structure, paths, and travel-time. Five regions were considered: Aleutians, Alaskan Peninsula, Kenai Peninsula, Kodiak Island, and East Alaska. Only records written at Fordham, at distances of 40° to 70°, were used. The analysis was made in the light of the work of Gutenberg, Adkins, Mukherjee, and Mangaswami, bearing on records at such distances. The results are embodied in a table showing the phases clearly identified by the authors. Particularly worthy of note among them are the late P and early S, the scarcity of reflected phases, and the lateness of the surface waves. - V. S.

8101. Macelwane, J. B. Progress Report of the Jesuit Seismological Association for the Years 1941, 1942, and 1943. Nat. Research Council, Am. Geophys. Union, Trans. 1944, pt. II, Washington, D.C., 1944, pp. 267-268.

Generated on 2024-09-19 16:06 GMT / https://hdl.handle.net/2027/osu.32435030643860
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

During 1941-43 the stations of the Jesuit Seismological Association continued for the most part their regular work, in spite of the war. The Central Jesuit Station in St. Louis received cooperation from other seismological stations throughout the world. In all, the Central Station made 74 locations of epicenters in 1941, 58 in 1942, and 45 in 1943. The great majority of them lie around the rim of the Pacific Ocean; a map is appended. In 3 years, the greatest focus depth of 300 km. was observed for one earthquake near the Fiji Islands, and for another in the Bolivian Andes. Nearly all the other major earthquakes on the West coast of South America, and many of them on the Pacific coast of Central America, were deeper than normal; in numerous cases, their depths reached 100 to 200 km. - V. S.

8102. Nature. The "Microtimer". London, vol. 153, No. 3889, 1944, p. 599.

The R. K. Dundas Co., Portsmouth, England, has produced an electronic timing device called the Microtimer. It measures the time interval between the making of two electrical contacts or between any other combination of contacts; it may also be operated without contracts. The standard instrument has a range of 10 to 1,000 milliseconds. It functions from the customary D.C. lines, although there is a battery model. Tests show that the zero drift is negligible. The accuracy claimed is within ± 2 percent of the full range. The principle of the circuit is briefly described. The microtimer can have a large variety of applications. - V. S.

8103. Neumann, Frank, and McComb, H. E. A General-Purpose Vibration Meter. Nat. Research Council, Am. Geophys. Union, Trans. 1944, pt. II, Washington, D. C., 1944, pp. 313-315.

The United States Coast and Geodetic Survey has undertaken to construct new vibration meters. They are required in studies of ground vibration, vibration of engineering structures, local shocks, preliminary waves of distant quakes, and microseisms. The instrument is of the Neumann-Labarre type and embodies many new improvements. In essence, the apparatus consists of a short boom supported by hinges and carrying a heavy mass. This mass may be adjusted to any position along the boom in order to secure the pendulum length desired. The outer end of the boom terminates in a three-pronged fork, so arranged that the thread operating the spindle may be controlled. The spindle carries a planoconvex mirror for use in optical registration. A right-angle prism mounted directly in front of this mirror directs the reflected light to the boom. Some further details are described. The instrument is shown in photographs. - V. S.

Noya, R. M. The Application of Geophysics to Water Supply Problems. Mine & Quarry Eng., Maidenhead, Berks., vol. 10, 1945, No. 1, pp. 15-19; No. 2, pp. 40-45. (See abs. 8116 in this issue.)

8104. Pendse. C. G. On the Theory of Seismometers. Phil. Mag., London, vol. 35, 1944, pp. 706-713.

Generated on 2024-09-19 16:05 GMT / https://hdl.handle.net/2027/osu.32435030643860
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

The exact general equation of motion of a seismometer is obtained, an important particular case being: $\ddot{\psi} + 2A\dot{\psi} + (n^2 + H \sin pt)\psi = BA_y \sin pt$. The particular integral and complementary function of this equation are found, and the equation is solved as far as the first order of the acceleration terms. The results obtained are discussed in relation to seismometers and seismograms, and it is shown that resonance periods other than the free period of the instrument may exist. An alternative form for the ground motion is considered. - L.S.F., Phys. Abs., London, vol. 48, No. 566, 1945.

8105. Petrescu, G. Détermination de l'épicentre du tremblement de terre do Roumanie du 22 octobre 1940 (Determination of the Epicenter of the Earthquake of October 22, 1940, in Rumania). Bull. Sect. Sci. Acad. Roum., Bucharest, vol. 24, 1942, pp. 517-528.

The epicenter of the earthquake of October 22, 1940, in Rumania was calculated by the following method: (1) Several pairs of stations with similar arrival times of P waves were selected. For each pair, the approximate position of the epicenter was determined on the basis of the average plumb-line reading between the stations of the pair. (2) The travel time from the focus was calculated by a compensation technique on the basis of the arrival times of P and S waves at stations removed from the focus by not more than 24°. With the aid of this travel time, compensations were introduced into distances from the focus for improving their precision. The resulting distances served for computing corrections for the coordinates of the epicenter. (3) Finally, four stations removed from the focus by not more than 7° were used for the determination of the depth of the focus. This depth was found to be 122 km. (4) For a check, the results were compared with macroseismic results on the earthquake. - V. S.

8106. Ricker, Norman. The Computation of Output Disturbances from Amplifiers for True Wavelet Inputs. Geophysics, Menasha, Wis., vol. 10, No. 2, 1945, pp. 207-220.

A procedure for the computation of amplifier output forms for a true wavelet input form is outlined, and examples are given showing the manner in which these output forms may be determined from the known amplitude vs. frequency and phase vs. frequency characteristics curves of the amplifiers. - Author's abs.

8107. Robertson, Florence. A Mathematical Analysis of Numerical Integration of Electromagnetic Seismograms. Nat. Research Council, Am. Geophys. Union, Trans. 1944, pt. II, Washington, D. C., 1944, pp. 294-304.

The author has previously applied numerical integration to the third integral in Galitzin's expression of earth motion. The curves obtained proved to be unreliable. Accordingly, the process of numerical integration is now subjected to critical examination. (1) Several simplifying assumptions are made. The mathematical equations of all three integrals are deduced. For

Generated on 2024-09-19 16:04 GMT / https://hdl.handle.net/2027/osu.32435030643860
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

each equation, a comparison is made between the curves of the analytical integral and of the numerical integral plotted for different time increments. The curves are presented. (2) Certain differences are found between the true integral and the numerical integral, such as a phase difference, a translation of the axes, etc., which are imcompatible with a use in Galitzin's equation. The causes are studied in the light of the conditions of harmonic motion. (3) It is further discovered that the third integral is differently dependent on phase correction and on the first constant of integration than are the first and second integrals. In the light of these considerations, the unreliability of the former results are attributed to the choice of too large a time increment, and to the approximate character of all integration. Difficulties are inevitable because numerical integration is inherently an approximation process and errors are cumulative. - V. S.

8108. Ulrich, F. P. A Cooperative Sismological Program with South and Central America. Nat. Research Council, Am. Geophys. Union, Trans. 1944, pt. II, Washington, D. C., 1944, pp. 271-274.

The author went to South and Central America to develop a cooperative seismological program for the total Western Hemisphere. He reports his observations on the local work and discusses a plan of cooperation. The plan resembles that carried out in the western United States by the United States Seismological Field Survey. The observations include the following: (1) Reports of current earthquakes through questionnaires exist only in Chile and Ecuador. (2) Detailed descriptions of major shocks are made in Chile, Ecuador, El Salvador, and Peru; some good descriptions were found in Colombia and Venezuela. (3) Fault maps are prepared for limited areas in Costa Rica, Ecuador, Panama, and Peru. (4) Building codes for reducing loss of life and damage to property have been enacted in Chile, El Salvador, Costa Rica, Ecuador, Guatemala, and Panama. (5) Accelerographs and seismographs operate at some stations in sufficient numbers; desirable locations for new installations are indicated. In conclusion, measures are recommended for putting the hemispheric program into effect; they include, in the first place, the establishment of a seismological bureau. - V. S.

8109. Voitești, I. P. Considérations géologiques sur la région épicentrale du tremblement de terre de Roumanie, du 10 novembre 1940 (Geological Considerations Regarding the Epicentral Region of the Earthquake of November 10, 1940, in Rumania). Compt. rend. Acad. Sci. Roum., Bucharest, vol. 5, 1941, pp. 179-203.

The Rumanian earthquake of November 10, 1940, is described with regard to the geological characteristics of the epicentral region, the causes of the quake, effects on adjacent areas, focus-depth determination, the propagation of macroseismic waves, and the influence of fracture lines on the direction of propagation. Rumanian earthquakes are then discussed in the light of the entire European seismic structure. - V. S.

Generated on 2024-09-19 16:48 GMT / https://hdl.handle.net/2027/osu.32435030643860
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

8110. Walter, E. J. An Extension of the Method of Numerical Integration of Seismograms to Include a Third Integration (abs.). Nat. Research Council, Am. Geophys. Union, Trans. 1944, pt. II, Washington, D. C., 1944, p. 289.

The integration of a galvanometrically recorded seismogram is discussed with a view to obtaining a record of actual ground motion. For such purpose, the integration process must be carried out over three integrations. Therefore, the solution demands that the theory of double integration, as developed by Neumann and others, be extended to include a third integration. The essential problem here is to determine the nature of the cumulative error and to find a method of correcting this error. Such a method is developed by the author and applied to a seismogram produced by a known motion. The following results are obtained: (1) The error curve is a cubical parabola; (2) the error is a function of each particular ordinate; (3) the correction factors should be determined for small intervals; and (4) the results are limited to the range beyond which the transient effects due to seismometer and galvanometer are effective (unless they are eliminated). - V. S.

8111. Wood, H. O. A Note on the Charleston Earthquake. Bull. Seismol. Soc. America, Berkeley, Calif., vol. 35, No. 2, 1945, pp. 49-56.

Data of observation presented in Dutton's report upon the Charleston earthquake are tested with formulas extracted from the paper by Gutenberg and Richter on "Earthquake Magnitude, Energy, Intensity, and Acceleration," with the resulting suggestions that the depth of focus may have been near 40 kilometers (25 miles) and the shock magnitude a little less than 8 on the Richter scale. Definite conclusions cannot be reached with the inadequate data now available, but this would explain the large area of perceptibility of the Charleston shock as compared, for examples, with those of earthquakes in California. - Author's abs.

4. ELECTRICAL METHODS

8112. Börner, R. Das Geoskopverfahren nach Dr. Machts und Mitarbeitern; 6 Jahre Geoskop-Forschung (The Geoscope Method According to Dr. Machts and his Collaborators; 6 years of Geoscope Investigation). Geiseen, Münchowsche Universitäts-Druckerei, 1944.

A detailed account is presented of numerous geoscope surveys and their results. The introduction outlines the development of the method and its apparatus. Part I gives a general description of geoscope surveying. Part II deals with specific geoscopic surveys. Lastly, part III is devoted to a study of secondary physical influences. In the text, empirical results are presented together with theoretical problems. Certain conflicts are discovered between the data of geoscope measurements and the physical theory of electromagnetic waves, and explanations are suggested. Attention is devoted to locating tectonis disturbances at depth. Though geoscope instruments cannot serve for depth determinations, they are quite sensitive to disturbances

Generated on 2024-09-19 16:05 GMT / https://hdl.handle.net/2027/osu.32435030643860
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

a few meters in thickness buried under a cover of several hundred meters. The limit of the method in this respect has not yet been determined. - V. S.

8113. Evjen, H. M. The Principle of Variation in Path with an Application to Structural Mapping. Geophysics, Menasha, Wis., vol. 10, No. 2, 1945, pp. 221-228.

A general functional analysis of the low frequency electric exploration problem is presented. The theory is applied to some field data where a fair degree of subsurface control exists. - Author's abs.

8114. Fritsch, Volker. Neuere Messgeräte für die Funkmutung (New Measuring Instruments for Radioprospecting). Elektr. im Bergbau, Munich, vol. 17, 1942, pp. 41-49.

Radioprospecting (Funkmutung) is carried out by means of electrical methods employing high frequencies. Suitable for such use are the methods of resistivity, substitute capacity, and subsoil and suprasoil spreading (including geoscope and ellipsoid methods). They are described with respect to underlying principles and the latest apparatus. The sources of error are indicated for each method. - V. S.

8115. Lundberg, Hans. Tracing the Course of a Flat-Angle Diamond Drill Hole by Electric Equipotential Lines (abs.). Economic Geology, Lancaster, Pa., vol. 40, No. 1, 1945, p. 90.

The hole, drilled at a flat angle, had wandered off its intended course. Surveys using a small compass did not give a true picture on account of strong magnetic anomalies in the vicinity of the hole. An equipotential survey of the area revealed the course of the hole fairly definitely. Later drilling has amply demonstrated the accuracy of the electrical survey. - Author's abs.

8116. Noya, R. M. The Application of Geophysics to Water Supply Problems. Mine and Quarry Eng., Maidenhead, Berks., vol. 10, 1945, No. 1, pp. 15-19; No. 2, pp. 40-45.

Electrical and seismic methods are discussed in application to water-supply exploration. (1) Electrical surveying is reviewed historically. Then attention is devoted to the vertical methods of electrical sounding based on Wenner's fall of potential principle and to the horizontal methods of resistivity mapping, using Schlumberger's curves of equal resistivity. Water measurements inside wells are considered. Some requirements as regards electrical apparatus are indicated. It is pointed out that the resistivity of formations varies according to the electrolytic conductivity of water, porosity of rock, percentage of voids filled with water, and area of contact between water and rock. Therefore, a direct localization of water by electrical

Generated on 2024-09-19 16:53 GMT / https://hdl.handle.net/2027/osu.32435030643860
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

exploration is not usually possible, and much assistance from geology is necessary. (2) Seismic surveying is likewise reviewed historically. The general principles are indicated, and the reflection and refraction methods described. Reflection surveying serves mostly for investigations at depths of 1,000 meters or more, and it is seldom employed for water exploration. Refraction surveying is better suited for water search, and it can be varied by the disposition of the receiving elements in the ground for vertical or horizontal prospecting. The apparatus are briefly considered. The speed of seismic waves in the subsoil depends fundamentally upon the modulus of elasticity, Poisson's ratio, and density of rock material. Since the presence of water in a formation lowers the speed of propagation in a compact formation and increases it in a muddy or loose formation, geological knowledge is again essential for accurate interpretation. The paper is illustrated by numerous drawings. - V. S.

8117. Oil and Gas Journal. Patents Issued on New Electrical Method for Oil Prospecting. Tulsa, Okla., vol. 43, No. 41, 1945, p. 79.

H. C. Hayes, United States Naval Research Laboratory, recently was granted two patents on a new method of electrical prospecting for oil (see abs. 8171 and 8172 in this issue). This method detects the geological formations favorable to oil accumulation. It is based on the following field observations: (1) Whenever an oil-bearing formation is surveyed electrically and the vertical current stream takes the form of sheets arising along its boundary, the axis of these sheets indicates the boundaries of the formation; and (2) when electrical surveying comprises a series of readings made of the potential drops between an electrode at one end of the cable and other electrodes at the stations, the potential's profile curve reveals the critical features characterizing the presence or absence of oil-bearing formations. The patents may be used by, or for, the United States Government without payment of royalties. - V. S.

8118. Ruedy, R. The Use of Cumulative Resistance in Earth-Resistivity Surveys. Canadian Jour. Research, Ottawa, vol. 23A, No. 4, 1945, pp. 57-72.

When the soil is assumed to consist of two layers - the upper of resistivity p_1 and the lower of resistivity p_2 - and cumulative resistances are calculated by adding or integrating the earth-resistivity functions for intervals that are a fraction of the thickness of the upper layer, a practically linear relation is obtained between the cumulative resistance and the electrode spacing until the distance between the electrodes is equal to the thickness of the upper material. Should one of the materials be at least twice as conducting as the other, the extent of the deviation from the linear law enables the determination of the depth of the upper stratum and of the ratio between the resistivities of the two layers. When three layers are present and the middle layer is at least twice as thick as the top stratum, the thicknesses may be deduced from the two departures of the cumulative resistances from the linear law. Since these conclusions are based on the

Generated on 2024-09-19 16:56 GMT / https://hdl.handle.net/2027/osu.32435030643860
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

theory of the individual apparent resistivity of stratified ground at various electrode spacings, they have the same range of application as the earth-resistivity curves, but the occurrence of straight line graphs facilitates the plotting and the interpretation of results based on a necessarily limited number of measurements. - Author's abs.

8119. Wichmann, H. Sign and Field Strength of Field Changes Due to Lightning. Gerlands Beitr. Geophys., Leopzig, vol. 59, No. 1, 1942, pp. 32-41.

Field changes caused by lightning discharges are registered by 3 methods of widely differing rates of response. 1,300 records are analyzed with respect to the signs of the field changes and their variations with distance. Indications are purported to have been found, according to which Wilson's values of field changes are too small by a factor between 10 and 100. - R.H.G., Sci. Abs., vol. 47, No. 560, 1944.

8120, Zaborovskii, A. I. Electrical Exploration (in Russian). Gosudarstvennoe Nauchno-Tekhnicheskoe Isdatel'stvo Neftianoi i Gorno-Toplivnoi Literatury, Moscow, 1943, 444 pp.

This comprehensive textbook covers the theoretical foundations and practical methods of electrical prospecting. (1) Under the heading "Direct rent" are treated such methods as resistivity, natural electric currents, charged body, and electrical coring, as well as the topics of the D. C. field in a heterogeneous and anisotropic field, the magnetic field, etc. (2) Under alternating currents of low and high frequency are discussed the methods using loops, equipotential lines, intensity, relationship between potentials, phases, two frames, infinite conductor, induction, and the wave methods, as well as the subjects of the electromagnetic field in the earth, its harmonic variation, its equations, the dipole, and the flat conductor. The book is approved for use in the higher educational institutions of the oil industry. - V. S.

5. RADIOACTIVE METHODS

8121. Gish, O. H. A Curious Effect in an Ionization Meter. Terrestrial Magnetism and Atmospheric Electricity, Baltimore, Md., vol. 50, No. 2, 1945, pp. 135-137.

Measurements show that the capacitance of ionization meters varies considerably from one instrument to another. K. L. Sherman has tested C. I. W. ionization meters and found that their rate of ion formation per cubic centimeter was more than three times that measured with a Kolhörster penetrating-radiation meter made in 1928. Kolhörster, and Hess and Reitz, tested six similarly constructed instruments using several different methods, and also found discrepancies, though less-pronounced. The author explains this variation in part by a secondary radiation from the walls which changes with time. This "wall effect" is in some cases considerably greater than the well-known

Generated on 2024-09-19 16:05 GMT / https://hdl.handle.net/2027/osu.32435030643860
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

"transition effect". Evidence by V. F. Hess is cited, revealing a wall effect of this type and showing that it is very sensitive to the condition of the wall. Other data are considered. It is concluded that careful attention must be accorded to the "wall effect" if serious errors in ionization measurements are to be avoided. - V. S.

8122. McCusker, C. B. A. A New Type of Counter for Ionizing Particles. Jour. Sci. Instruments, London, vol. 21, No. 7, 1944, pp. 120-122.

Geiger-Müller counters suffer from two disadvantages: (a) The thickness of the walls limits the radiation which may be studied to that above a certain minimum energy, and (b) their shape and the thickness of the walls prevents complete cover being obtained in anticoincidence work. A new type of counter is described in which these difficulties are overcome. Preliminary tests give a minimum value of 89 percent for the efficiency, and absorption experiments show that 85 percent of the particles counted have an energy less than 1.5×10^6eV. - Author's abs.

8123. Mercier, V. J. Radioactivity Well Logging in Kansas. Tomorrow's Tools - Today, Los Angeles, Calif., vol. 11, No. 1, 1945, pp. 4-9. Abridged in Oil and Gas Jour., Tulsa, Okla., vol. 43, No. 52, 1945, pp. 90-94.

The applications and advantages of gamma-ray and neutron logs in Kansas oil fields are described; the underlying principles are briefly indicated. (1) The most-important advantage of radioactivity logs is their ability to locate oil-bearing strata through the casing and cement. As an example, the logs of the Silica field, Barton County, are discussed. (2) Next in importance is the ability to record through any type of borehole drilling fluid. Radioactivity logs are not affected by the electrical conductivity of salt-water mud, oil-base muds, or other drilling fluids, which handicap the electrical log. The relative costs of radioactivity and electrical logging are tabulated. (3) A further advantage is the ease and accuracy of correlation used in exploration and work-over operations. The Adell Pool, Sheridan County, logged by the Continental Oil Co. is discussed as an example. (4) The neutron logs respond to entering or leaving fluid or casing. This feature is being increasingly exploited in Kansas. Its application is illustrated by the example of Arbuckle Dolomite fields. Some other advantages of radioactivity logs are listed. The text is illustrated by samples of logs and bibliographical references are given. - V. S.

8124. Muchemblé, G. Sur la radioactivité élevée des roches marines du tertain houiller du Nord de la France (Concerning the High Radioactivity of the Sea Rocks of the Coal Strata in the North of France). Compt. rend. Acad. Sci., Paris, vol. 216, 1943, pp. 270-271.

Ampelites (carbonaceous shales) rich in organic matter contain much more radium (up to 10.5×10^{-12} gram per gram of rock) than the limestones and

Generated on 2024-09-19 16:52 GMT / https://hdl.handle.net/2027/osu.32435030643860
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

igneous rocks of the same district. - L. J. S., Mineralog. Mag., London, vol. 27, No. 187, 1944, p. 71.

8125. Nawijn, A. The Mechanism of the Geiger-Müller Counter. Physica, Hague; pt. 1, vol. 9, No. 5, 1942, pp. 481-493; pt. 2 (with J. De Jong) vol. 10, No. 7, 1943, pp. 513-530; pt. 3 (with D. Mulder), vol. 10, No. 7, 1943, pp. 531-545.

Part 1. In this paper we compare our experiments on Geiger-Müller counters with the theories on the instability of the discharge "corona" - the phenomenon on which is based the functioning of the counters. It is found that the old theories (Hippel, Werner, and others) are insufficient even for giving a qualitative explanation of the observed phenomena. The theory of the hiatus (van Geel and Kerkum, Schade, Nunn-May) can give such an explanation, but the numerical agreement between the theory and the experiments is far from perfect. Accordingly, the latter theory has been modified by us with a view to improving the agreement. In presenting this work, we now begin with an introductory part which briefly describes the manner of using the instability of the discharge corona and the conditions necessary for obtaining a counter with a high resolving power. Further, the time periods characteristic of the impulses are evaluated, and their influence upon the resolving power is discussed. Our theory can also explain the functioning of the counters operated by alcoholic vapor.

Part 2. In this paper, counters operated by alcoholic vapors are examined more closely. We have particularly studied the phenomenon of posterior discharges often manifested in them. We also demonstrated that the phenomena observed in counters with alcoholic vapors can frequently be described similarly to those in counters with hydrogen. On the other hand, we have studied theoretically and experimentally the time periods characterizing impulses in the counters filled with gas or vapor. The influence of these mediums on the resolving power of counters is discussed.

Part 3. In this paper, we have deduced a generalized expression for the duration of a discharge in the Geiger-Muller counter. It is possible to understand by means of our method why the counters filled with certain gases give excellent results, why the employment of other gases yields mediocre results, and why with some gases the counters cease to function. We have studied theoretically and experimentally the minimum current (the current necessary for producing discharges of an average duration of 1 second) in its dependence upon the pressure of the gas and the dimensions of the counter. The interest of these investigations lies in the fact that a high minimum current makes it possible to obtain a large resolving power. - Authors' abs., translated by V. S.

8126. Shchepot'eva, E. S. The Radioactivity of the Waters and Rocks of Zheleznovodsk (in Russian). Bull. Acad. Sci. U.R.S.S. (Izvestiia), Moscow, Sér. Géorgr. Géophys., vol. 8, No. 6, 1944, pp. 406-411.

Measurements were made at different times, since 1916, of the radioactivity of the waters and rocks in the town of Zheleznovodsk, a Caucasian spa.

Generated on 2024-09-19 16:08 GMT / https://hdl.handle.net/2027/osu.32435030643860
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

The local geology is described, the results of the surveys of 1927-40 are tabulated, and conclusions are given. The latter are in part as follows: (1) The greatest radioactivity is found in trachyliparites, and it is higher than usually observed in eruptive rocks; the radioactivity of sedimentary rocks does not exceed ordinary values. (2) The radioactivity of some spa-sediments and of travertines is also considerable. (3) The Ra content in the waters of most spas is higher than usual. (4) The emanation coefficients of trachyliparites are relatively small; they range from 2.5 to 21.0 percent. - V. S.

8127. Technical News Bulletin of the National Bureau of Standards. Thin-Walled Aluminum Geiger-Müller Counters. U. S. Dept. Commerce, Washington, D. C., No. 340, 1945, p. 62.

Geiger-Müller tube counters, consisting of an insulated wire mounted axially in a metal tube that is maintained at a potential several hundred volts from that of the wire, are useful in the measurements of beta radiation from radioactive substances. The tube counter is sensitive to very low intensities of beta radiation, as it records each beta particle that passes through it by producing an electric pulse that can be amplified and registered. The application of Geiger-Müller tube counters to the measurement of beta rays is restricted by the fact that beta rays with energies as high as 1,000,000 volts can penetrate only a fraction of an inch of ordinary materials. This means that the counter tubes must have walls that are very thin and of low density. Most previous attempts to achieve this have been laborious and expensive, as the tube counter must be gastight. By using methods to plate thin layers of copper on commercially available aluminum tubes, such as are used for toothpaste, Burrell W. Brown and L. F. Curtiss have found it possible to make very excellent thin-walled counters by soldering a metal plug in the open end of the aluminum tube. As described in the Journal of Research for August (RP1666), these plugs support the insulators and glass tube for filling and sealing. The walls are only 0.004 inch in thickness, which permits most beta rays to pass through and be recorded. Counters made in this way are relatively inexpensive. - Anon.

8128. Wickman, F. E. Can the "Lead Method" be Used on Igneous Rocks? Arkiv Kemi, Min. Geol., Stockholm, vol. 16A, No. 23, 1943, 9 pp.

From the amounts of the isotopes Pb^{204}, Pb^{206}, Pb^{207}, and Pb^{208} found in an igneous rock, formulae are given for calculating their relative abundance at the time of crystallization, and hence the age of the rock. - L. J. S., Mineralog. Mag., London, vol. 27, No. 187, 1944, p. 69.

6. GEOTHERMAL METHODS

8129. Korytnikova, N. N. Regarding the Relation of Subsurface Tempetures to the Thermal Coefficients of Rocks and to the Shape of Subsurface Structures (in Russian). Bull. Acad. Sci. U.R.S.S. (Izvestiia), Moscow, Sér. Géogr. Géophys., No. 3, 1943, pp. 115-133.

Generated on 2024-09-19 16:08 GMT / https://hdl.handle.net/2027/osu.32435030643860
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

A mathematical study is made of thermal anomalies caused in the earth's crust by subsurface bodies of different thermal conductivity. (1) First, thermal distribution is analyzed for the case of plane strata extending infinitely in all directions. Both horizontal and inclined strata are considered; mathematical formulas are given. It is found that the inverse ratio of geothermal gradients to coefficients of thermal conductivity holds only for horizontal layers. (2) Next, various cases of strata finite in extent and delimited by surfaces of different forms are examined. The mathematical formulas for thermal distribution and the graphs of isotherms are presented. (3) Finally, the preceeding discussions are applied to evaluating the existing methods for calculating thermal gradients and heat flow. It is found that the determination of gradients from the earth's surface down to a given point by the formula $\gamma = u - u_0/\Delta z$ should be abandoned. It does not give either the real gradient at the point, or its average value for the entire region. A better method is that of least squares; it may serve for calculating the average gradient for the whole region of a borehole. - V. S.

8130. Kraskovsky, S. A. Geothermal Measurements in Artesian Boreholes (in Russian). Akademiia Nauk S.S.S.R., Trudy Komissii po Geotermike, Moscow, Vypusk I, 1941, pp. 16-30.

In the U. S. S. R. the largest number of geothermal measurements has been made in artesian boreholes. Since these boreholes are scattered over a very wide area, the findings give an approximate idea of the general distribution of geothermal gradients in the country. The author reviews 47 surveys made from 1870 to about 1932. The depth of geothermal measurements ranges from 40.5 to 795.0 meters. The results show a variation of temperatures from 5.0° to 52.3° C. and a variation of geothermal gradients from 1.4 (Caucasus) to 45.6 (Moscow), in m/C°. The districts of Moscow, Kharkov, and Leningrad have the largest number of artesian boreholes. The latest work here with use of up-to-date instruments and methods was done about 1932. In Kharkov the average geothermal gradient was 37.7 m./C.°; in Leningrad gradients ranged from 27.0 to 45.0 m./C.°. The paper is illustrated by curves of thermal distribution through different depths. - V. S.

8131. Romancvsky, Vsevolod. Sur un appareil permettant la détermination de la conductibilité thermique des sols (Concerning an Apparatus for the Determination of the Thermal Conductivity of Soils). Compt. rend. Acad. Sci., Paris, vol. 213, 1941, pp. 584-586.

A description is given of a method and an apparatus for determining the thermal conductivity of soil samples. On the basis of observations on Spitzbergen samples, the view is advanced that conductivity depends not only on soil particles but also, in part, on ions contained in the soil. - V. S.

Generated on 2024-09-19 16:53 GMT / https://hdl.handle.net/2027/osu.32435030643860
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

7. GEOCHEMICAL METHODS

8132. Tripp, R. M. Thermodynamics of a Gas Migrating Vertically Through the Sedimentary Column. Geophysics, Menasha, Wis., vol. 10, No. 2, 1945, pp. 229-237.

The gaseous hydrocarbons in a petroleum trap which escape to the surface by diffusing through the semipermeable geologic column are viewed thermodynamically to see if there might be an energy transfer involved that could produce a significant shift in the chemical, physical, or biologic equilibrium of the local environment. - Author's abs.

8133. Tripp, R. M. Measurement of Soil-Air Ions Over the Fort Collins Anticline. Geophysics, Menasha, Wis., vol. 10, No. 2, 1945, pp. 238-247.

The soil solution is examined for compounds of very low solubility products which might exist in a state of saturation over a large area; some radioactive compounds are found to fill this requirement better than any others. It is postulated that these minerals are preferentially precipitated in the interstices of the near surface soil by the evaporation of the soil water caused by the passage of gaseous hydrocarbons escaping from their subsurface reservoir. Measurements of the rate of formation of ions in the soil air over a producing structure are presented. - Author's abs.

8134. van Tuyl, F. M., and others. Geochemistry and Geobiology. Colorado Sch. Mines Quart., Golden, Colo., vol. 40, No. 2, 1945, pp. 79-81, 112.

The developments in geochemistry and geobiology during 1944 are outlined on the basis of the publications and patents that appeared during this year. The scarcity of reports on fundamental research, the tentative character of techniques, and the prominence of theoretical considerations are noted. A bibliography is appended. - V. S.

8. UNCLASSIFIED METHODS AND TOPICS RELATED TO GEOPHYSICS

8135. Borchers, R., and White, G. V. Geology of the Odendaalsrust Gold Field. Mining Jour., London, vol. 224, No. 5723, 1945, pp. 260-263.

A gold field has been discovered southeast of Odendaalsrust, N.W. Orange Free State. Exploration was carried out in part by geophysical methods. (1) Magnetic surveys were begun in 1938. Later the African & European Investment Co. made a survey of several thousand magnetic stations. The results were inconclusive, and the work was abandoned. (2) Gravimetric surveys were made about the same time. A preliminary survey by the African Geophysical Exploration Co. indicated a zone of relatively low values which became productive. Further exploration included a torsion-balance survey of 1,240 stations and a confirmatory gravimeter grid of 58 stations; Oscar Weiss introduced the idea of exploiting the density difference between the Ventersdorp lavas and

Generated on 2024-09-19 16:56 GMT / https://hdl.handle.net/2027/osu.32435030643860
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

the underlying quartzites. There were also specific-gravity determinations of rock specimens. Generally, drilling has borne out the gravimetric predictions. (3) Temperature determinations were made in a borehole in 1939-41. They established the following geothermic steps: Karroo beds, 65 ft. per 1°F.; lava and agglomerate-conglomerate, 140 ft. per 1°F. (mean); and underlying quartzites, 225 ft. per 1°F. The temperatures at 5,000 ft. in this area would seem to be comparable with the temperatures at about 8,500 ft. on the Witwatersrand. - V. S.

8136. Bulletin of the American Association of Petroleum Geologists. Review of Exploration and Development in 1944. Tulsa, Okla, vol. 29, No. 6, 1945, pp. 629-836.

Under the general title "Review of Exploration and Development in 1944" are presented 17 articles by different authors covering oil activities in the United States as a whole, its principal petroliferous regions, and Canada. Most articles contain brief references to geophysical work. - V. S.

8137. Cram, I. H. Resources and Resourcefulness. Bull. Am. Assoc. Petrol. Geol., Tulsa, Okla., vol. 29, No. 7, 1945, pp. 857-864.

In this presidential address to the American Association of Petroleum Geologists 30th annual meeting the author pointed out that natural oil and gas resources can be put to use only through resourceful exploration. Referring particularly to the information acquired by geophysical surveying, he said: "Geologists can add materially to the interpretations made largely by non-geologists by taking the trouble to learn the principles of the various geophysical methods, and, more important, by working with the data and realizing that they are, in fact, geologic data." - V. S.

8138. Deegan, C. J. Vigorous Exploratory Play Focuses Attention on Rocky Mountain Area. Oil and Gas Jour., Tulsa, Okla, vol. 43, No. 43, 1945, pp. 41-42, 47.

The Rocky Mountain region of the United States is currently undergoing much exploration. Geophysics is being used on a constantly expanding scale. The number of geophysical crews increased from 15 in 1941 to 22 in 1942, to 34 in 1943, and to about 70 in 1944. The general procedure involves reconnaissance with gravimeter, followed by detailing with seismograph. Much activity has been centered in the Big Horn Basin, the Wind River-Shirley Basin, the Green River Basin, the Washakie Basin, the Uinta Basin, and the Powder River Basin; all of these, except Powder River, lie in the western part of Wyoming and the northwestern part of Colorado. The structural features of the Rocky Mountain region are discussed and illustrated by sketch maps. - V. S.

Generated on 2024-09-19 16:55 GMT / https://hdl.handle.net/2027/osu.32435030643860
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

8139. Dresbach, C. H. Organization of Geophysical Parties for Foreign Exploration. Geophysics, Menasha, Wis., vol. 10, No. 2, 1945, pp. 137-159.

Current and future requirements of petroleum have produced a strong demand for American personnel, equipment, and techniques to be employed in the world-wide search for oil. Different, and sometimes much more difficult, conditions are frequently encountered from those customarily met in the exploration for oil in the United States. A brief consideration of some of these factors is the purpose of this paper. It is concluded that while careful preliminary planning and the design of equipment in the light of accurate information on conditions to be encountered are highly vital factors, the demonstrated and trustworthy character of the personnel conducting the operations is the biggest guarantee of success in the undertaking. - Author's abs.

8140. Fritsch, Volker. Die Erforschung des Wünschelrutenphänomens (Investigation of the Divining-Rod Phenomenon). Umschau, Frankfort a M., vol. 46, 1942, pp. 357-361.

No satisfactory explanation has been found so far for the divining-rod practice. To clarify this phenomenon, the author made some tentative experiments. He discusses the problem, communicates some results, and outlines the conditions of scientific investigation. Actually, in the use of the divining rod the subsurface conditions influence the man bearing the rod, rather than the rod itself. Moreover, the indications from the subsurface are not physiological or phychological, but physical. Unfortunately, all these factors are difficult to separate. Any successful study must control the variables, give reproducible results, and achieve an impartial interpretation. - V. S.

8141. Gabriel, V. G. Mathematical Chance of Finding Oil. Oil Weekly, Houston, Tex., vol. 117, No. 12, 1945, pp. 49-50, 56.

In oil exploration, the investment of funds, the choice of methods, and other problems are usually solved on the basis of wholly uncertain estimates of the chances of success. The author shows that an application of the mathematical theory of probability would render these estimates more definite and precise. The essentials of the theory are explained. Then the statistics of productive and dry wildcats in the United States during 1939-43 are used for computing the over-all probability which a producer has of discovering a productive well. It is found that, for the United States as a whole, the probability during the said period was 1 in 6.1, if drilling was based on geological information only; 1 in 5.0, if it was based on geophysical information only; 1 in 4.4, if based on both geological and geophysical information; and 1 in 20.6, if based on nontechnical information. Similar computations for Texas alone give somewhat higher probabilities. The Texas figures are further used for computing the probable profit to the producer; standard assumptions are made on the worth of oil discoveries and the cost of leasing, exploring, and drilling. It is found that employing both geophysical and geological information for drilling would result in a gain of $657,000, whereas using nontechnical information would result in a gain of only $16,000. - V.S.

Generated on 2024-09-19 16:07 GMT / https://hdl.handle.net/2027/osu.32435030643860
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

8142. Gunter, Herman. Florida Geology and Petroleum. Oil, New Orleans, La., vol. 4, No. 11, 1945, pp. 11-12, 16; Interstate Oil Compact Quart. Bull., Oklahoma City, Okla., vol. 3, No. 4, 1944, pp. 23-28.

Considerable geophysical work has been done in Florida in 1944. It included seismograph, magnetometer, and gravimeter surveys. (1) Siesmic reflection exploration was handicapped by an absence of marked lithological discontinuities in the local stratigraphy, particularly in the deeper zones. Recent refraction work seems to have been more successful. (2) Magnetometer and gravimeter results were difficult to interpret because little drilling has been done in Florida, and the knowledge of the subsurface is very limited. - V. S.

8143. Hallenbach, F. Die Durchlässigkeit poröser Gesteine und ihre Bestimmung (The Permeability of Porous Rocks and Its Determination). Oel und Kohle, Berling, vol. 39, 1943, pp. 7-20.

A distinction is made between the porosity and permeability of rocks. Both have significance as regards oil and gas reservoirs. Permeability, however, is more important because it indicates the productive capacity of deposits. The notion of permeability is discussed in the light of Darcy's law for liquids and gases. The methods of measuring permeability in the laboratory and in the field are described and clarified by examples. - V. S.

8144. Heroy, W. B. America's Future in Oil. Mining Mag., London, vol. 72, No. 5, 1945, pp. 308-311.

The author gave a presidential address before the Society of Economic Geologists and the American Institute of Mining and Metallurgical Engineers in February 1945. Therein he presented an economic and technical account of the oil situation in America. The contributions of geophysical exploration were considered. The view was expressed that the future will bring no material change in the type of oil accumulations discovered. By far the larger part of the newly found oil will continue to occur in traps that can be detected by exploring for structures. Geophysical methods have achieved a marked success in such prospecting. - V. S.

8145. Illing, V. C. Role of Stratigraphy in Oil Discovery. Bull. Am. Assoc. Petrol. Geol., Tulsa, Okla., vol. 29, No. 7, 1945, pp. 872-884.

In oil search, both geologists and geophysicists are now primarily concerned with structural traps. Yet, every structural feature is a part of a stratigraphic history and poses stratigraphic problems. Hence, stratigraphic requirements must be fulfilled before structural criteria can be applied. Taking this viewpoint, the writer discusses stratigraphic processes in relation to source rocks, reservoir rocks, and oil preservation. He points out that in the large basins of prolonged deposition, the preservation of oil and gas meets no difficulties, particularly when these are young; however,

Generated on 2024-09-19 16:50 GMT / https://hdl.handle.net/2027/osu.32435030643860
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

the older sedimentary basins require special conditions for protection, especially when subjected to diastrophism. Much oil has been, probably, lost in localities where periods of denudation broke the sedimentary cycle. The oil that survived usually owes its preservation to purely local factors. Accordingly, the oil prospects of an area depend not only on the period of deposition but also on erosional epochs. Both these factors should be considered in oil exploration. - V. S.

8146. Krumbein, W. V. Sedimentary Maps and Oil Exploration. Trans. New York Acad. Sci., Lancaster, Pa., ser. 2, vol. 7, No. 7, 1945, pp. 159-166.

Sedimentation theory adopts increasingly a quantitative approach. Numerical expression is particularly valuable for mapping sedimentary properties. Some of these properties have already been mapped. Others, such as particle size, average permeability, organic content, etc., make their appearance. The author classifies and discusses possible sedimentary contour maps, some of them yet untried. Among their various applications, such maps can be used in oil exploration. Particular groupings of sedimentary contours may prove to be as significant in the search for stratigraphic traps, as closed contours were in the search for structural traps. The steeper slopes, for instance, or the margins of steeper slopes, can provide indications on oil accumulation. - V. S.

8147. Oaks, H. A. Function of the Aeroplane in Canadian Prospecting. Canadian Min. Met. Bull., Montreal, No. 395, 1945, pp. 135-145.

The airplane has played an increasing role in Canadian prospecting from 1921 to 1939. The author reviews its past uses and future possibilities for reconnaissance, map photography, and transportation. From the characteristics of such work he deduced the requirements towards the designing of prospecting planes and the costs involved. Different factors in airplane performance are considered, such as take-off, speed, floating capacity, ruggedness, gross weight, pay load, power load, etc.; the data on 12 seaplanes used in northern Canada before the war are tabulated. The view is advanced that a flexible type of frontier plane should be developed for all-around performance in exploration. Three groups of aircraft models are discussed for such purpose: (1) Gross weight below 3,000 pounds, cost under $8,000; (2) gross weight, 3,000 to 5,000 pounds, cost $10,000 to $20,000; and (3) gross weight, 5,000 and up, cost $25,000 to $38,000. - V. S.

8148. Peyton, Garland. Prospecting for Oil and Gas in Georgia. Interstate Oil Compact Quart. Bull., Oklahoma City, Okla., vol. 3, No. 4, 1944, pp. 20-22; Oil, New Orleans, La., vol. 4, No. 11, 1945, pp. 13-14.

Geophysical exploration in Georgia's coastal plain has reached an all-time high in 1944. Throughout the year various oil companies have maintained

Generated on 2024-09-19 16:05 GMT / https://hdl.handle.net/2027/osu.32435030643860
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

geophysical crews of different types. The results of these surveys made possible a selection of sites offering promise for drilling. The geology of the coastal plain is briefly outlined. - V. S.

8149. Pirson, S. J. Genetic and Morphologic Classification of Reservoirs. Oil Weekly, Houston, Tex., vol. 118, No. 3, 1945, pp. 54-59.

This genetic and morphologic classification of oil and gas reservoirs is intended to serve as a helping tool for the geophysicist and reservoir engineer. It brings together the main conditions under which different types of reservoirs were formed and the diagnostic features for recognizing them by their geometry or external morphology. The material is embodied in three tables: (1) Petrologic or stratigraphic traps, (2) combination petrologic and structural traps, and (3) structural traps. Each table consists, in turn, of four columns: (a) Genetic and morphologic classes; (b) diagrams of cross sections; (c) diagnostic features for identification; and (d) typical examples of pools. A discussion of the classification, brief explanations of tabulations, and a bibliography of references accompany the tables. - V. S.

8150. Poisson, Yvon. Les essais de géophysique pour la mesure des propriétés des sols et terrains (Geophysical Tests for Measuring the Properties of Soils and Grounds). Génie civil., Paris, vol. 116, 1940, pp. 276-280, 291-294.

The methods used in investigating soil mechanics are described. They cover the gathering and storing of samples from cohesive and loose soils, the determination of water content, of porosity, of grain size, of the limits of plasticity and fluidity, of resistance to shear, of compressibility and permeability, etc. The principal apparatus used for these determinations are outlined. Some cases of mass distribution typical of soil mechanics are illustrated by graphs. - V. S.

8151. Rice, A. H. Air Photography in Geographical Exploration and in Topographical and Geological Surveying. Am. Jour. Sci., New Haven, Conn., vol. 243-A (Daly volume), 1945, pp. 486-494.

Air photography is of great value in reconnaissance surveys of large areas. The camera records geomorphological features which give clues to the underlying geological structures. Such usefulness of air photographs is exemplified by pictures taken during the Rio Branco-Uraricuera-Parima expedition of 1924-25. The inferences as regards general topography and structure to be gained from river craft, the only prior mode of access, are wholly different from those resulting from the true perspective aloft. Several major errors of deduction can be avoided. - V. S.

8152. Rust, W. M., Jr. Evaluation of New Geophysical Methods. Oil and Gas Jour., Tulsa, Okla., vol. 43, No. 48, 1945, p. 62.

Generated on 2024-09-19 16:05 GMT / https://hdl.handle.net/2027/osu.32435030643860
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

Condensed from a presidential address delivered at the meeting of the Society of Exploration Geophysicists on April 4, 1945, in Tulsa, Okla. (for full text see Geophys. Abs. 121, No. 8022). - V. S.

8153. Ter Braake, A. L. Mining in the Netherlands East Indies. Chapter 7: Oil. Netherlands and Netherlands Indies Council of the Institute of Pacific Relations, New York, Bull. 4, 1944, pp. 66-76.

Oil exploration in the Netherlands East Indies has centered chiefly in the islands of Sumatra, Borneo, Java, and New Guinea. It has included geological and geophysical surveys. The latter were made by seismic, gravimetrical, and electrical methods. They were used most extensively in the swamps of Sumatra, Borneo, and New Guinea. In some areas aerial mapping proved to be of much assistance. The areas surveyed and exploited are shown on a map. - V. S.

8154. Tiratsoo, E. N. The Influences of Structure on the Accumulation of Oil. Petroleum, London, vol. 7, No. 5, 1944, pp. 83-84.

The processes of oil formation and migration show that the most important factor for eventual accumulation is geological structure. The animal matter of oxygenless sediments in anaerobic waters is acted upon by bacteria, thus transforming fats and proteins into hydrocarbons. The weight of the sediments causes the connate water and oil in the lower strata to filter upward. In this process the oil is retained in porous beds, sands, sandstones, fissured limestones, and other porous mediums when they form suitable structures. Such structures are the anticline, sealed monocline, facies field, lens field, and salt-dome field; they are described. These structures can be discovered by different geophysical methods. The seismic, gravitational, magnetic, electrical, radioactive, and geochemical methods are briefly discussed. A table shows the structural classes of world's chief oil fields. - V. S.

8155. van Tuyl, F. M., and others. Developments in Geophysics. Colorado Sch. Mines Quart., Golden, Colo., vol. 40, No. 2, 1945, pp. 63-79, 109-112.

This review covers developments in geophysics during the year 1944. The subjects treated are the scope of geophysical activities, trends in exploration, developments in techniques, well logging, contributions to regional geology, and miscellaneous papers of geophysical interest. The material is based on some 30 reviews, reports, and investigations of different writers. Other publications are listed in a bibliography. - V. S.

9. NEW PUBLICATIONS

8156. Coulomb, Jean, Editor. Annales de Géophysique, vol. 1, No. 1, 1944. Société de la Revue d'Optique Théorique et Instrumentale, Publishers, Paris, 1944.

Generated on 2024-09-19 16:48 GMT / https://hdl.handle.net/2027/osu.32435030643860
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

A new scientific journal, "Annales de Géophysique," has appeared in France under the direction of Jean Coulomb, new director of the Institut de Physique du Globe and professor at the University of Paris. The first number contains original papers dealing with various aspects of geophysics: Indirect measurement of the density of rocks by means of the gravimeter, geomagnetic researches on the volcanic flow of Auvergne, etc. There are also included notes from laboratories and bibliographic reviews. - V. S.

8157. National Research Council, U.S.A. American Geophysical Union: Transactions of 1944. Washington, D.C., pt. I-VI, 1944-45, 1,066 pp.

The Transactions of the American Geophysical Union for 1944 have been issued in six parts. Of direct interest to exploration geophysicists are: (a) Part 2: Reports and papers of the General Assembly, of the Section of Geodesy, and of the Section of Seismology and Eastern Section of the Seismological Society of America; and (b) Part 4: Reports and papers of the Sections of Terrestrial Magnetism and Electricity, Oceanography, Volcanology, and Tectonophysics. Nonmembers wishing to purchase the Transactions should address orders, with checks payable to the American Geophysical Union, to General Secretary, American Geophysical Union, 5241 Broad Branch Road N.W., Washington 15, D.C., U.S.A. (A review of Transactions 1944 appears in Terrest. Magnet. and Atm. Electr., vol. 50, No. 2, 1945, pp. 163-164). - V. S.

8158. van Tuyl, F. M., Parker, B. H., and Skeeters, W. W. The Migration and Accumulation of Petroleum and Natural Gas. Quart. Colorado Sch. of Mines, Golden, Colo., vol. 40, No. 1, 1945, 111 pp.

The time of the origin and accumulation of oil and gas is considered briefly, and an analysis of the factors involved is given. Then rival explanations, together with experimental data favorable to each, are outlined and discussed. There follows a weighing of the theories, in which the views of the authors are supplemented by those of other contributors. In the conclusions the need for further studies of the problem of the origin and evolution of petroleum is stressed, and the inadequacy of much of the previous experimental work is pointed out. Finally, several broad generalizations and suggestions are offered regarding a more concerted and coordinated attack upon the problem. - (A review of this paper appeared in Econ. Geol., vol. 40, No. 2, 1945, p, 154.) - V. S.

10. PATENTS

8159. Method of Detecting the Penetration of an Oil-Bearing Horizon. J. G. Campbell, Houston, Tex., assignor to R. H. Fash, trustee, Fort Worth, Tex. U. S. Patent 2,361,261, issued Oct. 24, 1944.

The method of determining the penetration of an oil-bearing horizon in the drilling of a well, which consists in obtaining a sample of the drilling fluid entering the well and an independent sample of approximately the same

Generated on 2024-09-19 16:50 GMT / https://hdl.handle.net/2027/osu.32435030643860
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

drilling fluid leaving said well, adding equal amounts of an oil solvent per unit surface area to the surface of each sample to form a relatively thin layer of said solvent over the surface, subjecting the said samples to the action of ultra-violet light in order to cause the oil content thereof to fluoresce, the intensity of the fluorescence of said samples being in direct proportion to the oil content thereof, and measuring any increase in the fluorescense of the discharged drilling fluid sample as compared to the fluorescence of the sample of drilling fluid entering the well, to thereby detect the penetration of an oil-bearing horizon, said thin layer of oil solvent on the surface of each sample facilitating the observation of the fluorescent effect. - Claims allowed, 3.

8160. Microphone for Conduits. L. C. Converse, Tulsa, Okla., assignor to Standard Oil Development Co., a corporation of Delaware. U. S. Patent 2,361,458, issued Oct. 31, 1944.

A device for acoustically logging bore holes comprising, in combination, an elongated container, a diaphragm transversely arranged in said container with its periphery secured thereto to divide said container into a first and a second compartment, an actuating rod perpendicular to the plane of said diaphragm and secured thereto with an end of said rod extending into the first and an end extending into the second compartment, said ends being free to vibrate, a means in the first compartment arranged to produce an electrical signal which is a function of the vibration of the end of the rod extending into the first compartment, and a vane in the second compartment perpendicular to the plane of the diaphragm and secured to the actuating rod, the wall of that portion of the container defining the second compartment being provided with horizontally extending perforations adjacent said vane. - Claims allowed, 3.

8161. Method and Apparatus for Detecting Hydrocarbons. R. L. Doan, Bartlesville, Okla., assignor to Phillips Petroleum Co., a corporation of Delaware. U. S. Patent 2,362,805, issued Nov. 14, 1944.

A method of treating drilling fluid comprising confining a sample of the drilling fluid in a closed vessel, heating the sample in the vessel to a temperature above the boiling point of the same whereby a superatmospheric pressure in the vessel results, flashing the heated drilling fluid under pressure into a lower pressure zone, cooling the vaporous effluent of the flashing step sufficiently to condense water vapor present, adding an oxygen containing gas to the remaining vaporous effluent to form a mixture, and passing the mixture to a combustion zone to measure the combustible content. - Claims allowed, 5.

8162. Gas Analysis and Combustion Chamber Therefor. C. C. Bies, Houston, Tex., assignor to Standard Oil Development Co., a corporation of Delaware. U. S. Patent 2,364,940, issued Dec. 12, 1944.

Generated on 2024-09-19 16:51 GMT / https://hdl.handle.net/2027/osu.32435030643860
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

A method for the complete combustion of a combustible gas which comprises mixing the gas with an excess of oxygen, confining the mixture in a closed chamber at a subatmospheric pressure at which the mixture will glow under the influence of a high-frequency electric current, and subjecting the mixture in said chamber to the action of a short wave radiofrequency current. - Claims allowed, 4.

8163. Apparatus for Drilling-Rate Logging. Daniel Silverman and R. W. Stuart, Tulsa, Okla., assignors to Stanolind Oil & Gas Co., Tulsa, Okla., a corporation of Delaware. U. S. Patent 2,365,014, issued Dec. 12, 1944.

Apparatus for recording the rate of penetration of a drill bit through formations penetrated in the course of a rotary drilling operation per unit number of revolutions of said bit, including means for advancing a record strip proportional to the descent of said drill bit, means for producing a series of electric impulses in direct proportion to the number of revolutions of said drill bit, means actuated by descent of said drill bit for producing an electric current varying directly in average amplitude with the descent of said drill bit, means for recording on said strip a quantity varying directly with said current, and means controlled by said impulse producing means for periodically limiting the recorded amplitude on said strip. - Claims allowed, 3.

8164. Automatic Gain Adjusting Device for Reflection Seismographs. W. D. Mounce, Houston, Tex., assignor to Standard Oil Development Co., a corporation of Delaware. U. S. Patent 2,366,043, issued Dec. 26, 1944.

Seismic prospecting apparatus comprising means for converting seismic waves, the amplitudes of which decrease as a function of time, into electrical pulsations of corresponding amplitudes, a recorder connected to said means having in an electromagnetic field a plurality of responsive elements adapted to be activated proportionately to the amplitudes of the pulsations and means for increasing the electromagnetic field and, thereby, the responsiveness of said elements at a rate corresponding to the rate of decrease of the amplitudes of said pulsations. - Claims allowed, 5.

8165. Measurement of the Rate of Soil-Gas Evolution. J. L. Patton, Dallas, Tex., assignor to Socony-Vacuum Oil Co., Inc., New York, N. Y. a corporation of New York. U. S. Patent 2,366,351, issued Jan. 2, 1945.

The method of determining the rate of soil-gas emanation from earth below the water table into a borehole into which soil gas flows and into which the seepage of water is characteristic which comprises, sealing off a section of the borehole at a depth below the water table to form below the seal a gas-collecting chamber defined by the seal and the walls of the borehole below the seal, providing a passage for gas through the seal whereby soil gases emanating from the walls of the borehole defining the collecting chamber may pass through the seal and a separate passage for water with its inlet below the

Generated on 2024-09-19 16:48 GMT / https://hdl.handle.net/2027/osu.32435030643860
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

inlet of the passage for gas, maintaining the level of seepage water in the bottom of said borehole collecting chamber substantially constant and below the opening of the gas passage by discharging seepage water tending to raise the level of the pool through the separate water passage in the seal thereby maintaining a constant volume gas chamber whereby the soil gas collecting in said chamber may have free access to the gas passage, and measuring the rate of emanation of soil gas from the second passage as a measure of the rate of emanation from the earth into the collecting chamber. - Claims allowed, 2.

8166. Means and Method of Well Logging; J. C. Bender, Houston, Tex., assignor to McCullough Tool Co., Houston, Tex., a corporation of Nevada. U. S. Patent 2,366,694, issued Jan. 9, 1945.

The method of logging boreholes comprising the steps of establishing substantially uniform temperature conditions within the fluid in the borehole, thereafter lowering a pair of spaced electrodes within the fluid, measuring by an electrical connection through the lowering means the variations in the electrodes at any particular period during the lowering step, and simultaneously adjusting the electrical resistance of the measuring circuit so as to compensate the measurements for the temperature gradient between vertically spaced points in the earth. - Claims allowed, 6.

8167. Automatic Volume Control for Recorder Amplifiers. O. S. Petty, San Antonio, Tex. U. S. Patent 2,367,049, issued Jan. 9, 1945.

An amplifier for amplifying a train of (seismic) waves extending over a period of several seconds and in which an earlier arriving part of the train has a general amplitude level several times greater than the later arriving part, and in which the level of the later arriving part of the train gradually decreases, comprising in combination an amplifier including a variable gain thermionic valve, means to apply said train to said amplifier, means to deliver the amplified train, and means to automatically reduce the gain of said valve during reception of said earlier arriving part of the train and thereafter to automatically return the gain to normal at a gradual rate spread over the greater portion of the period of reception of the later arriving part of the train, whereby compensation is had for the normal decrease in amplitude of such later arriving part of the train, said last named means including a source of bias voltage other than said waves, a condenser charged from said source, and connections between said condenser and a grid of said valve, and devices operable in response to variation in amplitude of said waves for controlling said connections to connect said condenser to said grid on the reception of said earlier arriving part of the train. - Claims allowed, 2.

8168. Gravimeter Null Indicator; P. H. James, Houston, Tex. U. S. Patent 2,367,126, issued Jan. 9, 1945.

Generated on 2024-09-19 16:55 GMT / https://hdl.handle.net/2027/osu.32435030643860
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

A device for determining forces of gravity over submerged areas which comprises a housing to be submerged, a mass therein movable as a function of the force of gravity thereon, a freely swinging support in said housing, a pair of light responsive elements and a source of light therefor also carried by said support, means operable by movement of the mass to affect the light cast by said source upon said responsive means, additional means suspending said mass in said support so that the force of gravity will effect movement of the mass and consequent movement of said first means, and means on the surface to indicate such movement as an indication of the force of gravity at the location. - Claims allowed, 3.

8169. Method of Prospecting for Buried Deposits; Eugene McDermott, Dallas, Tex. U. S. Patent 2,367,592, issued Jan. 16, 1945.

A method of geochemical exploration for subterranean petroliferous deposits which comprises collecting samples of soil at spaced points in the area to be investigated at a depth several feet below the surface, said depth being sufficient to eliminate the effect of surface conditions, determining the sulfate content of the respective samples, and determining the location of petroliferous deposits by selecting the significant high sulfate values and correlating the same with reference to the locations at which samples yielding such significant high values were obtained. - Claims allowed, 4.

8170. Method of Petroleum Exploration. J. G. Campbell, Houston, and R. H. Fash, Fort Worth, Tax., assignors to R. H. Fash, trustee, Fort Worth, Tex. U. S. Patent 2,367,664, issued Jan. 23, 1945.

In a method of exploring for subterranean oil deposits, the step of treating an earth sample containing petroleum oil in practically unweighable quantities and in adsorbed relation to water contained in the earth sample, which includes an extraction process using a relatively water-insoluble oil solvent having a work of adhesion to water greater than the work of adhesion of petroleum oil to water, whereby as a result of the said extraction process the solvent will thus contain the adsorbed oil previously contained in the earth sample. - Claims allowed, 14.

8171. Electrical Prospecting. H. C. Hayes, Washington, D.C. U. S. Patent 2,368,217, issued Jan. 30, 1945.

A method of determining the presence or the physical characteristics, such as the probable boundaries, the depth and the inclination, of an oil-bearing formation that comprises measuring at points along a profile line differences of electrical potential caused at least in part by the natural currents of the oil-bearing formation, plotting a curve the ordinates of which depend upon the said differences of potential and the abscissae of which depend upon the positions of the said points and, if the said curve is of a type that has a critical feature or features known to represent earth

Generated on 2024-09-19 16:04 GMT / https://hdl.handle.net/2027/osu.32435030643860
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

potentials resulting from current streams arising from the peripheries of a known type of oil-bearing formation and known to indicate the presence or the physical characteristics, such as the boundaries, the depth and the inclination, of the known type of oil-bearing formation, determining, by analogy with the critical feature or features of the said curve of the said type that is known to indicate the presence or the physical characteristics, such as the boundaries, the depth and the inclination, of the known type of oil-bearing formation, the probable presence or characteristics of the first-named oil-bearing formation. - Claims allowed, 10.

8172. **Electrical Prospecting.** H. C. Hayes, Washington, D.C. U. S. Patent 2,368,218, issued Jan. 30, 1945.

A method of determining the presence or the physical characteristics, such as the probable boundaries, the depth and the inclination, of an oil-bearing formation that comprises measuring at points along a profile line differences of electrical potential caused in part by the natural currents of the oil-bearing formation and in part by extraneous currents, correcting the measurements to eliminate therefrom the influence of the extraneous currents, plotting a curve the ordinates of which depend upon the corrected differences of potential and the abscissae of which depend upon the positions of the said points and, if the said curve is of a type that has a critical feature or features known to represent earth potentials resulting from current streams arising from the peripheries of a known type of oil-bearing formation and known to indicate the presence or the physical characteristics, such as the boundaries, the depth and the inclination, of the known type of oil-bearing formation, determining, by analogy with the critical feature or features of the said curve of the said type that is known to indicate the presence or the physical characteristics, such as the boundaries, the depth and the inclination, of the known type of oil-bearing formation, the probable presence or characteristics of the first-named oil-bearing formation. - Claims allowed, 9.

8173. **Well Logging.** J. J. Mullane, Tulsa, Okla., assignor to Standard Oil Development Co., a corporation of Delaware. U. S. Patent 2,368,486, issued Jan. 30, 1945.

A method for logging a borehole drilled for oil by the method in which a continuous circulation of drilling fluid is maintained between the surface and the bit which comprises arranging in said stream of drilling fluid a device sensitive to radioactive emanations and continuously recording the responses of said device to the materials in the said drilling fluid during the drilling operation. - Claims allowed, 4.

8174. **Well Survey Method and Apparatus.** R. E. Fearon, Tulsa, Okla., assignor to Well Surveys, Inc., Tulsa, Okla., a corporation of Delaware. U. S. Patent 2,368,532 issued Jan. 30, 1945.

In a device for geophysical exploration in which an instrument is lowered into an opening in the earth to measure characteristics of the surrounding

Generated on 2024-09-19 16:51 GMT / https://hdl.handle.net/2027/osu.32435030643860
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

strata and a recorder is positioned at the surface to record the measurements, the improvement which comprises as means to connect the measuring instrument with the recorder and with at least one source of power also positioned on the surface, a cable connected to the measuring instrument and extending to the surface to support the measuring instrument and form an electrical connection thereto, a source of electrical current connected to said cable and the ground at the upper end of the cable, means at the measuring device connected between the ground and the lower end of the cable for receiving said current and utilizing it as power to operate the measuring device, means at the measuring device for impressing upon the surrounding earth and the supporting cable through filters that will exclude the main power supply current and each other, at least two alternating electrical currents of different frequencies, the phase relation and relative magnitude of certain components of said alternating currents being indicative of the state of said measuring instrument, means at the surface end of the cable for removing said indicating currents through similar filters, and means for recording the measurement made by the instrument as indicated by the said indicating currents. - Claims allowed, 11.

8175. Apparatus for Transmitting Seismic Signals. E. M. Shook and R. W. Olson, Washington, D.C., assignors, by mesne assignments, to Socony-Vacuum Oil Company, Inc., New York, N. Y., a corporation of New York. U. S. Patent 2,369,081, issued Feb. 6, 1945.

In a system for recording a time-break impulse that is indicative of the instant of detonation of an explosive charge to create seismic waves in the earth's surface having means for generating a voltage impulse coincidentally with the instant of detonation of the explosive charge, means for transmitting said voltage impulse to a point removed from the point of detonation of the explosive charge, the combination of means of said point actuated by the voltage impulse regardless of its polarity, for generating a second voltage impulse, means for recording the second voltage impulse as the time-break impulse on a trace of a seismogram, and means interposed between said second voltage impulse generating means and the recording means for blocking all signals generated subsequent to the impulse that is indicative of the instant of detonation, whereby other data can subsequently be distinctly recorded on the same trace. - Claims allowed, 9.

8176. Apparatus for Seismic Surveying. E. M. Shook and R. W. Olson, Washington, D.C., assignors, by mesne assignments, to Socony-Vacuum Oil Co., Inc., New York, N. Y., a corporation of New York. U. S. Patent 2,369,082, issued Feb. 6, 1945.

In a system for transmitting seismic signals and voice signals, the combination of a thermionic tube having an input circuit including a control electrode and an output circuit in which signals applied to said control electrode are reproduced, means for applying voice signals and an impulse indicative of the instant of creation of seismic waves to said control electrode, and means operable immediatcly after application of said impulse to said electrode for preventing reproduction in said output circuit of signals and impulses later applied to said control electrode. - Claims allowed, 14.

Generated on 2024-09-19 16:07 GMT / https://hdl.handle.net/2027/osu.32435030643860
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

8177. Well Logging. Alex Frosch, Houston, Tex., assignor to Standard Oil Development Co., a corporation of Delaware. U. S. Patent 2,369,550, issued Feb. 13, 1945.

A method for logging boreholes by measurement of the gamma-ray intensity therein at various levels which comprises moving a bomb containing a Geiger-Müller counter along said borehole, delivering alternating-power current to said bomb, converting said current into direct current in the bomb, delivering said direct current to the Geiger-Müller counter, transmitting the output of the Geiger-Müller counter to the surface through the same conductor which carries the alternating current to the bomb, and recording said output at the surface while excluding said power current from the recording circuit. - Claims allowed, 13.

8178. Method and Apparatus for Logging Boreholes. D. G. C. Hare, New York, N. Y., assignor, by mesne assignments, to the Texas Company, New York, N. Y., a corporation of Delaware. U. S. Patent 2,369,672, issued Feb. 20, 1945.

The method of logging a borehole which comprises passing a detector of penetrative radiation through the hole, maintaining said detector in contact with the side wall of said hole during said passage, recording variations in the intensity of radiation picked up by said detector as different formations are traversed, and simultaneously calipering the diameter of the hole opposite said detector. - Claims allowed, 7.

8179. Drill Mud Logging Recording System or the Like. R. W. Stuart, Fort Sill, Okla., assignor to Stanolind Oil & Gas Co., Tulsa, Okla, a corporation of Delaware. U. S. Patent 2,369,811, issued Feb. 20, 1945.

In apparatus for the indication of widely varying concentrations of substances in the circulation fluid of rotary-drilling equipment indicative of changes in the formations penetrated by said drilling equipment, including an electric analyzer for the concentration of such indicative substances and a source of alternating current connected to said analyzer, a triode vacuum tube, a high resistance connected between the grid and cathode of said tube, means for impressing across said high resistance a signal proportional to the output of said electric analyzer, said high resistance and said means constituting the sole connections between the grid and the cathode of said tube, a second high-gain vacuum tube containing at least one cathode, grid and plate, a second high resistance connected between said grid and cathode of said second high-gain tube, means for impressing the output of said triode vacuum tube across the grid and cathode of said second high-gain tube, said second high resistance and said last-metnioned means constituting the sole connections between the grid and cathode of said second high-gain tube, a rectifier for rectifying the output signals from said second high-gain tube and means for producing a visual indication of the rectified output from said rectifier. - Claims allowed, 1.

Generated on 2024-09-19 16:04 GMT / https://hdl.handle.net/2027/osu.32435030643860
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

8180. Method and Apparatus for Logging Boreholes. D. G. C. Hare, Houston, Tex., assignor, by mesne assignments, to The Texas Company, New York, N. Y., a corporation of Delaware. U. S. Patent 2,370,162, issued Feb. 27, 1945.

The method of logging the formations traversed by a borehole which comprises lowering through said hole a plurality of radiation detectors disposed in separated vertical relation, said detectors being responsive to natural gamma radiation emitted by said formations, modulating a carrier wave by the output of each detector, the frequency of each carrier differing from those of the other carriers, transmitting said carriers over a cable to the surface, separating said carriers and recording the carrier modulated by each detector. - Claims allowed, 7.

8181. Amplifier. Gary Muffly, Penn Township, Allegheny County, Pa., assignor to Gulf Research & Development Co., Pittsburgh, Pa., a corporation of Delaware. U. S. Patent 2,370,483, issued Feb. 27, 1945.

A seismic amplifier comprising a pair of resistance-tuned circuits the inputs of which are in parallel, a plurality of coupled electron discharge tubes in each circuit, a bridge in each circuit, connections from each bridge to the grid of the first of said coupled electron discharge tubes, means for tuning the bridges to desired upper and lower frequencies, respectively, at which drop-off of response is desired, said bridges and connections providing inverse feedback of all other frequencies, whereby extraneous frequencies are eliminated, the outputs of said amplifier circuits being in opposition, resulting in a band-pass of desired characteristics within the range of the selected upper and lower frequencies. - Claims allowed, 10.

8182. System for Gas Analysis. W. M. Zaikowsky, Pasadena, Calif., assignor, by mesne assignments, to Consolidated Engineering Corp., Pasadena, Calif., a corporation of California. U. S. Patent 2,370,703, issued Mar. 6, 1945.

Apparatus for removing a gaseous component from a gaseous mixture comprising a closed circuitous path having at least two nonhorizontal portions, first means for condensing a gas component onto the walls of one zone of said conduit, and means for heating a gas in a second zone of said contuit to revaporize any condensed constituent passing through said first zone into said second zone, at least one of said zones being in one of said two nonhorizontal portions to maintain thermosiphon circulation in said conduit. - Claims allowed, 4.

8183. Geochemical Prospecting. Leo Horvitz, Houston, Tex., assignor to E. E. Rosaire, Houston, Tex. U. S. Patent 2,370,793, issued Mar. 6, 1945.

A method of geochemical exploration for subterranean petroliferous deposits which comprises collecting samples of soil at spaced points in the

Generated on 2024-09-19 16:48 GMT / https://hdl.handle.net/2027/osu.32435030643860
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

area to be investigated at a depth several feet below the surface, said depth being sufficient to eliminate the effect of surface conditions, subjecting the individual samples to an analysis for the determination of the content per unit weight thereof of a substance selected from the group consisting of ionizable inorganic salts and the component ions thereof and correlating the contents of the substance so determined in the respective samples with the locations of the samples so that the possible existence of an area of petroleum deposit may be ascertained from the orientation of samples having anomalous contents of said substance. - Claims allowed, 20.

8184. Method of Well Logging. J. A. Riise, Jr., Bartlesville, Okla., assignor to Phillips Petroleum Co., a corporation of Delaware. U. S. Patent 2,370,814, issued Mar. 6, 1945.

The method of investigating earth formations surrounding the bore of a productive well comprising cleaning the well bore, introducing aqueous fluid containing surface tension reducing agents into the well bore until the hydrostatic head of the fluid is approximately equal to the formation pressure, electrically logging the uncased portion of the well bore at intervals thereafter, and increasing the hydrostatic head of the fluid prior to each logging. - Claims allowed, 6.

8185. Electrical Logging of Well Bores. A. L. Smith, Houston, Tex. U. S. Patent 2,371,270, issued Mar. 13, 1945.

An apparatus for logging well bores comprising, a bare resistor, said resistor being of a high-resistance material having a low temperature coefficient of resistance, insulated conductors attached to the ends thereof and adapted to lower the resistor within a well bore, a source of electrical energy connected to said conductors, so as to pass a current through the resistor where the resistor is of such greater length than the diameter of the well bore that a substantial part of the current flowing through the conductors to the end of the resistor will flow through the earth formations adjacent the resistor and produce a current pattern in the liquid in the well bore and in the surrounding formations, and means for determining the fluctuations in the current pattern as the resistor is made to traverse the bore hole. - Claims allowed, 3.

Generated on 2024-09-19 16:05 GMT / https://hdl.handle.net/2027/osu.32435030643860
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

INDEX

(The figure in parentheses refers to the class in which the entry stands; see list in table of contents.)

	Class	abs.
Althausen, O. N.	(2)	8066
Andreev, B. A.	(1)	8053
Athanasiu, G.	(2)	8067
Beach, F. K.	(3)	8084
Beles, A. A.	(3)	8085
Bender, J. C.	(10)	8166
Bies, C. C.	(10)	8162
Billot, Henri	(1)	8054
Blum, V. J.	(2)	8068
Boletin de Informaciones Petroleras, Y. P. F.	(1,3)	8055
Bonchkowskii, V. F.	(3)	8086
Börner, R.	(4)	8112
Borchers, R.	(8)	8135
Bridgman, P. W.	(1)	8056
Bulletin of the American Association of Petroleum Geologists.	(8)	8136
California Oil World	(3)	8087
Campbell, J. G.	(10)	8159, 8170
Closs, H.	(1)	8057
Converse, L. C.	(10)	8160
Coulomb, Jean	(9)	8156
Cram, I. H.	(8)	8137
Criticos, N. A.	(3)	8088
Deegan, C. J.	(8)	8138
Digiesi, Domenico	(2)	8069
Dillon, Vincent	(3)	8100
Dix, C. H.	(3)	8089
Doan, R. L.	(10)	8161
Dresbach, C. H.	(8)	8139
Dubiago, A. D.	(1)	8058
Evjen, H. M.	(4)	8113
Fash, R. H.	(10)	8170
Fearon, R. E.	(10)	8174
Fleming, J. A.	(2)	8070
Fotiadi, E. E.	(1)	8053
Fritsch, Volker	(4)	8114, 8140
Frosch, Alex	(10)	8177

Generated on 2024-09-19 16:48 GMT / https://hdl.handle.net/2027/osu.32435030643860
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

	Class	abs.
Gabriel, V. G.	(8)	8141
Gaby, P. P.	(3)	8090
Gamburtsev, G. A.	(3)	8091
Gassmann, Fritz	(2)	8071
————————	(3)	8092
Gish, O. H.	(5)	8121
Gotsman, B.	(2)	8079
Gun, Ross	(1)	8059
Gunter, Herman	(8)	8142
Gutenberg, Beno	(3)	8093, 8094
Haarstick, F. von	(3)	8095
Hallenbach, F.	(8)	8143
Hare, D. G. C.	(10)	8178, 8180
Harrison, E. P.	(2)	8072
Hayes, H. C.	(10)	8171, 8172
Hemberger, S. J.	(2)	8077
Heroy, W. B.	(8)	8144
Hodgson, E. A.	(3)	8096
Horton, C. W.	(3)	8097
Horvitz, Leo	(10)	8183
Howe, H. H.	(2)	8073
Illing, V. C.	(8)	8145
James, P. H.	(10)	8163
Jeffreys, Harold	(1)	8060
Johnston, H. F.	(2)	8074
Jones, W. M.	(3)	8098
Kalashnikov, A. G.	(2)	8075
Knapp, D. G.	(2)	8076
Kogbetliantz, E. G.	(1,2)	8061
Korytnikova, N. N.	(6)	8129
Kraskovsky, S. A.	(6)	8130
Krumbein, W. C.	(8)	8146
Lambert, W. D.	(1)	8062
Lee, F. W.	(2)	8077
Lees, G. M.	(3)	8099
Lomaev, G. Z.	(1)	8063
Lundberg, Hans	(4)	8115
Lynch, W. A.	(2)	8100

Generated on 2024-09-19 16:48 GMT / https://hdl.handle.net/2027/osu.32435030643860
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

	Class	abs.
Macelwane, J. B.	(3)	8101
McComb, H. E.	(3)	8103
McCusker, C. B. A.	(5)	8122
McDermott, Eugene	(10)	8169
Mercier, V. J.	(5)	8123
Mikov, D. S.	(2)	8078
Mounce, W. D.	(10)	8164
Muchemble, G.	(5)	8124
Muffly, Gary	(10)	8181
Mullane, J. J.	(10)	8173
National Research Council	(9)	8157
Nature (London)	(3)	8102
Nawijn, A.	(5)	8125
Neumann, Frank	(3)	8103
Neumann, G.	(1)	8064
Noya, R. M.	(3,4)	8116
Olson, R. W.	(10)	8175, 8176
Oaks, H. A.	(8)	8147
Ogg, A.	(2)	8079
Ogurskii, A. F.	(2)	8080
Oil and Gas Journal	(4)	8117
Parker, B. H.	(9)	8158
Patton, J. L.	(10)	8165
Payton, Garland	(8)	8148
Pendse, C. G.	(3)	8104
Petresen, G.	(3)	8105
Petty, O. S.	(10)	8167
Pirson, S. J.	(8)	8149
Poisson, Yvon	(8)	8150
Rice, A. H.	(8)	8151
Ricker, Norman	(3)	8106
Riise, J. A., Jr.	(10)	8184
Robertson, Florence	(3)	8107
Romanovsky, Vsevolod	(6)	8131
Ruedy, R.	(4)	8118
Rust, W. M., Jr.	(8)	8152
Samsonov, N. N.	(1)	8053
Shchepot'eva, E. S.	(5)	8126
Shook, E. M.	(10)	8175, 8176
Silverman, Daniel	(10)	8163
Sheeters, W. W.	(9)	8158
Smith, A. L.	(10)	8185

Generated on 2024-09-19 16:08 GMT / https://hdl.handle.net/2027/osu.32435030643860
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

	Class	abs.
Smith, E. H.	(2)	8072
South African Mining and Engineering Journal	(1,2)	8065
Stuart, R. W.	(10)	8163, 8179
Swainson, O. W.	(2)	8081
Swartz, J. H.	(2)	8077
Taitt, A. H.	(3)	8099
Tamm, I. E.	(2)	8082
Technical News Bulletin, National Bureau of Standards	(5)	8127
Ter Braake, A. L.	(8)	8153
Tiratsoo, E. N.	(8)	8154
Tripp, R. M.	(7)	8132, 8133
Tuyl, F. M., van	(7)	8134
————	(8)	8155
————	(9)	8158
Ulrich, F. P.	(3)	8108
Vacquier, Victor	(2)	8083
Voitesti, I. P.	(3)	8109
Walter, E. J.	(3)	8110
White, G. V.	(8)	8135
Wichmann, H.	(4)	8119
Wickman, F. E.	(5)	8128
Wijk, A. M., van	(2)	8079
Wood, H. O.	(3)	8111
Zaborovskii, A. I.	(4)	8120
Zaikowsky, W. M.	(10)	8182
Zakashanskii, M. S.	(1)	8053

Generated on 2024-09-19 16:48 GMT / https://hdl.handle.net/2027/osu.32435030643860
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google

Digitized by Google

Original from
THE OHIO STATE UNIVERSITY